

REPORT

OF THE

MEDICAL AND HEALTH DEPARTMENTS,

KEDAH AND PERLIS.

FOR THE YEAR,

1931 A.D.

(11TH SHA'ABAN, 1349 TO 20TH SHA'ABAN, 1350 A.H.)

BY

J. GRAY, M.D.,

ACTING STATE SURGEON TO THE KEDAH GOVERNMENT.



Alor Star :

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MEDICAL AND SANITARY REPORT, KEDAH.

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I. ADMINISTRATION.

The principal appointments are:—

The State Surgeon (also State Surgeon for Perlis Government).

The Senior Health Officer.

The Health Officer.

3 Medical Officers—one in each Centre.

1 Lady Medical Officer—stationed at Alor Star.

1 Pathologist attached to Health Office.

8 Assistant Surgeons.

3 European Nursing Sisters.

57 Dressers (including 3 Laboratory Assistants).

1 Qualified Dispenser—Store-keeper.

3 Asiatic Nurses.

6 Asiatic certificated midwives (attendant class).

4 Vaccinators.

5 Health Inspectors attached to Health Office.

11 Health Inspectors attached to various Sanitary Boards.

1 Laboratory Assistant, Health Office.

CHANGES IN THE STAFF.

Dr. D. Bridges, State Surgeon, left for England on leave prior to retirement on 26-7-31 A.D.—10-3-50 A.H. Dr. M. J. Graham, Acting Senior Health Officer, acted as State Surgeon in addition to his own duties from 26-7-31—10-9-31 A.D. 10-3-50—26-4-50 A.H.

Dr. J. Gray seconded for service from the Straits was appointed Acting State Surgeon, Kedah, on 11-9-31 A.D.—27-4-50 A.H.

Dr. J. I. Baeza returned from leave on 26-11-31 A.D.—15-7-50 A.H. and resumed duty as Senior Health Officer, Kedah, and Dr. M. J. Graham returned to the Federated Malay States on 27-11-31 A.D.—16-7-50 A.H.

Dr. (Mrs.) M. G. Brodie, temporary Lady Medical Officer, Alor Star, resigned on 12-5-31 A.D.—24-12-49 A.H. and her place was taken up by Dr. (Mrs.) L. S. O'May seconded from the Straits on 6-5-31 A.D.—18-2-49 A.H.

Miss R. E. Alcock, Nursing Sister, Sungei Patani, retired on 9-5-31 A.D.—21-12-49 A.H. on the expiration of her agreement and Nursing Sister Miss V. D. Smith from Alor Star succeeded her.

Miss R. J. Davis, Nursing Sister, Straits Settlements, was seconded for service in Alor Star on 15-5-31 A.D.—27-12-49 A.H.

Dr. P. T. Krishnan Nayar, Assistant Surgeon, Sungei Patani, proceeded to England on 8 months leave for study.

Dr. M. Sundra Rajan, extra Assistant Surgeon, Alor Star, was temporarily transferred to Perlis on 5-8-31 A.D.—19-3-50 A.H. to take the place of Dr. R. Sivasambandan, Assistant Surgeon, who went on 10 months' study leave in England.

Dr. J. A. P. Cameron from the Straits was seconded for service and stationed in Kulim on 2-2-31 A.D.—14-9-50 A.H.

1 extra Assistant Surgeon was appointed.

2 Dressers were retrenched and pension granted.

2 Clerks retired on pension.

POPULATION.

The estimated population of Kedah, according to races, is:— Malays 286,722, Chinese 78,381, Indians 51,027, Europeans 413, Eurasians 101, and others 13,001— Total 429,645.

Appendix A gives the totals for the last 15 years.

Appendices B—H give details of births and deaths, and

Appendix K shews the principal causes of deaths.

DISTRICTS.

The State is divided into 3 Districts for purpose of administration:— North, Central and South.

North Kedah has an area of 1,549 square miles with an approximate population of 226,000. This area is mostly paddy land. The population for the most part is Malays.

Central Kedah has an area of 1,546 square miles with a population of approximately 32,000.

South Kedah has an area of 553 square miles with a population of approximately 68,000.

Central Kedah and South Kedah contain most of the rubber estates in Kedah, and a large portion of the population is South Indians.

MEDICAL INSTITUTIONS.

NORTH KEDAH.

Hospital, Alor Star	..	..	..	..	..	250 beds.
„ Langkawi Island	..	..	..	..	..	63 „
Out-door Dispensary, Alor Star Town.						
„ „	Changloon.					
„ „	Yen.					

CENTRAL KEDAH.

Hospital, Sungei Patani	..	..	..	..	..	258 beds.
„ Baling	..	..	..	..	..	28 „
Out-door Dispensary, Sik.						

SOUTH KEDAH.

Hospital, Kulim	..	..	..	..	..	200 beds.
Out-door Dispensary, Bandar Bharu.						

Each District is provided with a Motor Ambulance which does routine travelling dispensary work in the district, visiting all Schools, Villages, Police Stations en route. The map shows the area covered by the travelling Dispensary. ..

The Prisons at Alor Star and Sungei Patani have each a sick ward.

BUILDINGS.

The following buildings were completed and occupied during the year:—

Quarters for Asiatic Nurses, Alor Star.

Lavatory for the female staff, Alor Star.

Motor car shed, Alor Star.

Quarters for Assistant Surgeon, Sungei Patani.

Quarters for Junior Dresser, Baling.

FINANCIAL.

The Revenue for the financial year 1349 A.H. (29-5-30—18-5-31 A.D.) was as follows:—

	1349 A.H.	1348 A.H.
Medical	\$39,593.82	\$77,105.51
Health	55.00	69.00

The decrease in the Medical revenue is due partly to the slump and the establishment of Estate Group Hospitals.

EXPENDITURE.

MEDICAL BRNACH.

	1349 A.H.	1348 A.H.
Personal Emoluments ..	\$175,996.79	\$198,231.00
Other Charges	221,716.88	250,202.23

The decrease in the Medical expenditure under Personal Emoluments is partly due to reduction of certain staff and payment of salary to certain officers at lower rates—and the decrease under Other Charges is due to fewer admissions to hospitals.

HEALTH BRANCH.

	1349 A.H.	1348 A.H.
Personal Emoluments	\$23,941.48	\$18,419.39
Other Charges	24,116.83	18,108.62

The actual expenditure of the whole Medical Department, after deducting the revenue was \$406,123.

II. PUBLIC HEALTH.

GENERAL.

The figures for 1931 are only comparable with those for 1930, because up to the middle of 1929, for the purpose of annual reports the Mohammedan calendar was in force.

With the exception of 2 cases of small-pox, the health throughout the State has been good.

The death rate 21.59 per mille was the lowest ever recorded, and the birth rate 36.93 per mille compares favourably with 40.22 in 1930, which was the peak year for births.

The natural increase of the population was 6,486, as against 6,960 in the previous year.

COMMUNICABLE DISEASES.

Malaria:

(i) Fever unspecified continues to rank as the most important cause of death—3,900 as against 2,133 in 1930.

(ii) The number of deaths from Malaria 182 is low compared with the 1930 figure of 313.

(iii) Similarly the number of deaths from *infantile convulsions*, which was the most important cause of death in 1930, and which reached the figure of 2,707 has fallen to 1,805 for the year under review.

Even though the accuracy of diagnosis was probably greater than ever before owing to the better functioning of estates group hospitals, it is probably more reliable to group malaria, unspecified fevers and infantile convulsions together and to regard the total deaths 5,887 from these three causes as deaths from malaria. The corresponding

figure for 1930 was 5,153, so that taking into consideration the natural increase of population, malaria as a cause of death was probably neither greater or less than in 1930, at the same time unsuitable feeding as an important cause of death from infantile convulsions cannot be disregarded.

The reduction in the number of deaths from infantile convulsions must be credited to a very great extent, to the Kedah Health Board organisation through its group doctors and group hospitals. The former see cases early while the latter afford efficient accommodation and prompt treatment for such cases.

Cholera: There have been no cases.

Small-pox: Two cases of this disease occurred in South Kedah in February.

Tropical Typhus: There have been no cases reported.

Typhoid and Paratyphoid fevers: The number of deaths from these diseases has been more than double that of 1930—47 against 21. This was due probably to the facilities for laboratory diagnosis offered to estates group hospitals.

Ankylostomiasis: 490 deaths were registered under this heading, as against the excessively high figure of 1,276 in the previous year.

Tuberculosis: The number of deaths from this disease has more than doubled itself during the last 5 years.

Statistical data such as are available cannot be relied upon to furnish any true indication of the prevalence or significance of this disease in the State but from observation over a number of years, this disease would appear to be definitely on the increase.

Infantile Mortality: This rate was 122.12, a distinct improvement on the rate for 1930 which was 142.02.

The rate is as usual highest among Tamils, and lowest among Malays. The Tamil and Malay rates of 237.32 and 98.55 respectively for the year, show marked improvement on the rates for 1930, viz: 252.09 and 124.33 respectively.

Owing to the improved curative and preventive measures on estates which affect Indians chiefly, a decline was anticipated in all the racial rates but the considerable fall in the case of Tamils and the phenomenal decline in the case of Malays was beyond all expectations. The fact that Chinese rate has remained constant would probably indicate that agricultural holdings employing Chinese labour for the most part, do not yet take the fullest advantage of the facilities offered by the Health Board organisation.

The infantile mortality rates for the past 6 years, are included in Appendix "H" for comparison purposes.

OFFICIALS.

The following table gives the Health Statistics of Government Officials, other than Subordinates, in Kedah.

				European.	Native.
Number of officials resident	..	..	..	64	71
Average number resident	..	..	..	48.12	66.21
Total number on sick list	..	..	..	23	29
Total number of days on sick list	..	..	..	223	229
Average daily number on sick list	..	..	..	.61	.62
Percentage of sick to number resident	..	..	..	35.93	40.84
Average number of days on sick list for each patient	..	..	..	9.69	8.24
Average sick time to each resident	..	..	..	3.48	3.22
Total number invalided	..	..	..	..	..
Percentage of invalidings to total resident	..	..	..	..	..
Total Deaths	..	..	..	..	..
Percentage of deaths to total resident	..	..	..	..	..
Percentage of deaths to average number resident	..	..	..	..	..
Number of cases of sickness contracted away from residence	..	..	..	..	..

III. HYGIENE AND SANITATION.

Routine anti-malarial measures chiefly oiling were carried out in the Sanitary Board areas of Alor Star, Sungei Patani, Kulim, and Kuah in the island of Langkawi.

Monthly larval surveys were also made in the above mentioned places and in addition at the two frontier stations Bukit Kayu Hitam and Padang Besar.

Similarly surveys were made on a number of estates where employers had decided to undertake temporary or permanent measures for the elimination of malaria.

These surveys since their introduction 3 years ago have been of inestimable value, in indicating whether oiling activities should be increased or diminished, and have thereby served as an index of safety from malaria, at a minimum cost.

State Council provided a special sum of money for permanent drainage work in the hospital ravine at Sungei Patani which has for many years been a breeding ground for *A. maculatus*. This work which was commenced towards the end of the year is steadily progressing.

In October last, a severe outbreak of malaria was reported at Bayas, Teriang and Ronggut in the island of Langkawi.

On the 8th of the month, these places were visited by the State Surgeon and the Senior Health Officer. Investigation revealed that out of a total population of approximately 1,000 souls, there were 67 deaths probably from malaria.

Larval surveys were made, which resulted in the disclosure of a high larval index of *A. maculatus* in an extensive seepage area surrounding the bendangs. Neither permanent or temporary oiling measures were possible for economic and other reasons, and so, prophylactic quinine was recommended and provided for the rayats living in the affected areas.

One meeting of the Anti-Malarial Board was held during the year.

WATER SUPPLY.

On the fourth day of November, the new water works for Alor Star, situated at Bukit Pinang and designed to deliver 1,000,000 gallons of water per diem was opened by H. E. the High Commissioner.

The supply—a long felt need—has for its source the river—Sungei Anak Bukit. The plant consists of the usual pumping machinery which delivers the crude river water into a high level reservoir of 1,800,000 gallons capacity after chemical admixture with milk of lime and alum, followed by filtration under pressure through a battery of 6 horizontal sand filters.

Before entry into the reservoir, the filtered water is dosed with gaseous chlorine.

The whole undertaking was installed at a cost of \$480,000, and furnishes the town of Alor Star with an ample supply of water of which the analysis confirms the purity anticipated by its designers.

There is provision for a 3rd engine which together with 3 additional filters will enhance the supply to a total of 2,000,000 gallons per diem.

PROPAGANDA.

This work was limited to the exhibition of cinematograph films.

14 shows were given at schools and kampongs in North, Central and South Kedah.

Two films on "Malaria" and "Child welfare" in Malay and English and one film which combined the subjects of Tuberculosis, Hookworm and Beri-beri in Chinese and English were shown. These films were much appreciated everywhere, and requests from the masters of Chinese schools for further exhibitions are an indication of the appreciation of this form of propaganda.

GENERAL SANITATION.

General Sanitation on estates has improved considerably in spite of the continued financial depression of the country. Estate health was phenomenally good as reflected by the figures shown in "Appendix G". Not only was the total estate death rate, viz. 5.7 per mille, the lowest ever recorded, but it was very nearly a 60% improvement on the 1930 rate of 14.2 per mille, which was previously the best year for which records are available. The improvement was not in respect of any particular class of owner, but was effected on both European and native owned properties almost equally. This was due to the greater stability of labour forces; to mass routine treatments which have been adopted by nearly every group association operating under the Health Board Enactment; to the facilities afforded for prompt medical attention, and to a lesser extent to the weeding out of the more sickly surplus labourers for repatriation. (This latter of course applies almost entirely to Tamil labour).

Some orders were made under the Labour Code for protected wells and latrines, but only in cases where such were absolutely necessary. The orders were complied with, with little demur in nearly all cases.

While there was a reduction of the population equivalent to about 30% on European holdings, that on native holdings has increased by 75% on the previous year's figures: so that the total estate population shows a decrease of only about 3% on last year. This decrease consists almost entirely of Indian labour, since the employees on native estates are for the most part Malays and Chinese.

VISITS TO ESTATES.

The Senior Health Officer, the Health Officer and Staff paid during the year 400 visits to Both European and native owned estates.

Estates figures are shown in the Appendices "N" to "T".

VISITS TO SCHOOLS.

53 schools were visited of which 36 were Malay "Vernacular" and 17 Chinese.

3,618 Malay pupils out of 4,127 on their registers and 658 out of 685 Chinese pupils were examined.

The examination of schools by the Health Office Staff is confined to the male sex.

An analysis of the common complaints found, is shown in Appendix "L".

The unvaccinated rates for Malays and Chinese, are recorded as 7% and 5% respectively. These rates appear to be high but in fact they are not true rates, since all who show no marks, are recorded as unvaccinated, though many of these have been vaccinated on several occasions. Steps have been taken to record separately, in the future, the "vaccinated" who have failed to take, and the "unvaccinated."

IV. MATERNITY AND CHILD WELFARE.

During the year there were 288 deaths recorded as due to affections connected with pregnancy and parturition or 1.2% to total births. The number of still births recorded were 756 as compared with 1,016 in 1930 or a decrease of 260.

279 cases under "Pregnancy and its diseases" were treated in the various hospitals and there were 15 deaths or 5.37% to total treated.

Dr. (Mrs.) M. G. Brodie, temporary Lady Medical Officer, was in charge of the Child Welfare Centre in North Kedah till 6-5-31 (18-12-49) when Dr. (Mrs.) L. S. O'May seconded from the Straits took her place.

Maternity Wards.

Inpatients.							.....
Malays	..	..	..	..	..	..	2
Chinese	..	..	..	..	..	..	33
Tamils	..	..	..	..	..	..	63
Sikhs	..	..	..	..	..	..	14
Eurasians	..	..	..	..	..	..	1
Total							113
Normal cases							97
Abnormalities and forcep cases							16
Total							113

Out-door Maternity Cases.

Malays	..	..	..	..	..	..	93
Chinese	..	..	..	..	..	..	3
Tamils	..	..	..	..	..	..	10 ..
Others	..	..	..	..	..	..	4
Total							110
Still born							8
Twins							2
Normal							94
Abnormal							6
Total							110

N.A.B. and Sulfarsenol Injections, by Lady Medical Officer.

(a) According to Nationalities.

Places	Malays	Chinese	Indians	Siamese	Japanese	Total
General Hospital ...	936	95	63	14	...	1,108
Alor Star Town Dispensary	60	17	7	...	3	87
Jitra	109	...	...	...	...	109
Changloon	80	...	...	...	...	80
Yen	160	8	...	...	...	168
Kuala Nerang ...	96	1	2	...	...	99
Total ...	1,441	111	72	14	3	1,651

(b) According to age.

Places					Women	Children	Total
General Hospital	...	...	...	...	575	533	1,108
Alor Star Town Dispensary	...	...	...	...	53	34	87
Jitra	...	...	...	...	47	62	109
Changloon	...	...	...	...	44	36	80
Yen	...	...	...	...	55	113	168
Kuala Nerang	...	...	...	...	76	23	99
Total					850	801	1,651

(c) According to diseases.

Places					Yaws	Syphilis	Total
General Hospital	...	...	...	...	959	149	1,108
Alor Star Town Dispensary	...	...	...	...	51	36	87
Jitra	...	...	...	...	108	1	109
Changloon	...	...	...	...	80	...	80
Yen	...	...	...	...	167	1	168
Kuala Nerang	...	...	...	...	95	4	99
Total					1,460	191	1,651

1st Injection	..	..	..	..	..	..	1,064
2nd	„	..	..	..	..	..	349
3rd	„	..	..	..	..	..	134
4th	„	..	..	..	..	..	62
5th	„	..	..	..	..	..	20
6th	„	..	..	..	..	..	16
7th	„	..	..	..	..	..	4
8th	„	..	..	..	..	..	1
9th	„	..	..	..	..	..	1
Total							1,651

V. HOSPITALS AND DISPENSARIES.

A total of 12,695 patients were treated in all Hospitals. The deaths numbered 738 giving a percentage of 5.81. 207 deaths occurred within 48 hours of admission; excluding these, the death rate was 4.81 per cent.

The following table gives the number treated in hospitals for the past 5 complete years:—

Year	No. treated	Deaths	Percentage of deaths
1344 A.H. ...	21,336	1,503	7.04
1345 „ ...	21,472	1,841	8.57
1346 „ ...	24,432	1,987	8.13
1347 „ ...	19,121	15,06	7.87
1930 A.D. ...	17,800	1,155	6.48
1931 „ ...	12,695	738	5.81

Both the admissions and deaths shew a decrease, mainly due to reduction of labour on Estates, and the opening of Group Hospitals.

The following return gives the number of Indoor Sick treated during the year in the various Government Hospitals:—

Hospital				No. treated	Deaths	Percentage of deaths
Alor Star	...	...	...	4,566	275	6.02
Sungei Patani	...	...	...	4,454	268	6.01
Kulim	...	...	...	2,750	169	6.14
Baling	...	...	...	354	14	3.95
Langkawi	...	...	...	279	12	4.30
PRISON SICK WARDS.						
Alor Star	...	...	...	233	...	...
Sungei Patani	...	...	...	59	...	...
Total				12,695	738	5.81

Nationalities of Indoor Patients.

Nationalities				No. treated	Deaths	Percentage of deaths
Europeans	...	...	...	14	...	...
Eurasians	...	...	...	1	...	...
Chinese	...	...	...	5,653	438	7.74
Indians	...	...	...	5,346	242	4.52
Javanese	...	...	...	17	...	...
Malays	...	...	...	1,450	50	3.44
Japanese	...	...	...	2	1	50.00
Others	...	...	...	212	7	3.30
Total				12,695	738	5.81

The average daily number of Indoor patients in Kedah Government Hospitals for the past 5 years was:—

1344 A.H.	..	..	..	..	..	975.23
1345 „	..	..	..	..	..	948.67
1346 „	..	..	..	..	..	1,002.94
1347 „	..	..	..	..	..	942.38
1930 A.D.	..	..	..	..	..	881.11
1931 „	..	..	..	..	..	557.86

PREVAILING DISEASES—SICK INDOOR.

Diseases	1347 A.H.			1930 A.D.			1931 A.D.		
	Cases	Deaths	Deaths %	Cases	Deaths	Deaths %	Cases	Deaths	Deaths %
Malaria	6,289	484	7·69	5,461	269	4·93	2,735	103	3·76
Dysentery, Amœbic ...	330	59	17·87	244	32	13·11	160	17	10·62
„ Bacillary ...	236	76	32·20	216	46	21·28	99	12	1·21
Venereal Diseases ...	917	16	1·74	577	10	1·73	248	...	...
Respiratory Diseases. (ex. Pulm. Tuber.)...	1,098	249	22·68	1,143	196	17·14	598	46	7·85
Pulmonary Tuber. ...	252	108	42·85	262	99	37·78	300	116	38·67
Ankylostomiasis ...	1,916	138	7·20	1,207	51	4·22	609	19	3·15
Ulcers	1,419	2	·14	1,552	8	·51	1,126	1	·08
Wounds & Injuries ...	1,542	29	1·88	1,849	36	1·94	1,675	26	1·55
Other diseases ...	5,122	345	6·73	5,289	408	7·52	5,145	398	7·73
Total ...	19,121	1,506	7·87	17,800	1,155	6·48	12,695	738	5·81

MENTAL DISEASES.

There were 182 males and 53 females remaining at the Tanjong Rambutan Mental Hospital at the beginning of the year. 68 patients were admitted, 5 were readmitted, 62 were discharged as cured, 20 died, and 5 absconded; and the number remaining at the end of the year was 221 (162 males and 59 females).

The admissions for the last 5 years were as follows:—

1345 A.H.	..	..	..	..	..	..	49
1346 „	..	..	..	..	..	..	72
1347 „	..	..	..	..	..	..	59
1930 A.D.	..	..	..	..	..	..	80
1931 „	..	..	..	..	..	..	73

LEPROSY.

	Remained	Admitted	Total	Discharged	Transferred	Absconded	Repatriated	Died	Remaining
Pulau Jerajak and Jelutong ...	101	38	139	2	16	6	1	14	100
Pangkor Laut	8	4	12	...	...	...	...	1	11
Kuala Lumpur Asylum ...	...	16	16	...	...	...	...	2	14
Kedah Hospitals	6	62	68	2	58	2	...	5	1

The admissions to the Asylums during the last five years were as follows:—

1345 A.H.	27
1346 „	20
1347 „	45
1930 A.D.	25
1931 „	42

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APPENDIX A.

The population of Kedah for the year 1931, is estimated to be 429,645 against 416,288 for 1930 A.D. The following is a comparative table for the last 14 years:—

Year	Estimated Population	Births	Birth-rate per mille	Deaths	Death-rate per mille	
1329 A.H. ...	245,813	...	...	...	...	Census figure
1336 „ ...	290,000	7,902	27·25	6,299	21·72	
1337 „ ...	300,000	9,102	30·34	11,548	38·49	
1338 „ ...	325,000	9,593	29·51	8,557	26·14	
1339 „ ...	338,558	10,153	29·99	8,718	25·75	Census figure
1340 „ ...	340,000	10,305	30·30	8,656	25·40	
1341 „ ...	341,596	9,454	27·73	7,834	23·41	
1342 „ ...	350,000	11,095	31·70	7,877	22·41	
1343 „ ...	375,500	11,152	29·69	8,647	23·02	
1344 „ ...	384,124	11,342	29·52	9,910	25·75	
1345 „ ...	398,222	13,738	34·49	10,723	26·92	
1346 „ ...	399,864	13,066	32·68	11,424	28·57	
1347 „ ...	405,650	15,347	37·83	9,561	23·57	
1930 A.D. ...	416,288	16,745	40·22	9,785	23·51	
1931 „ ...	429,645	15,615	36·34	9,129	21·24	Census figure

“ B ”

Population according to races with death rate for the year 1931 A.D.

Races				Approximate Population	Deaths	Death-rate per mille
Europeans	...	...	...	413	1	2·42
Eurasians	...	...	...	101	2	19·80
Malays	...	...	...	286,722	6,019	20·99
Chinese	...	...	...	78,381	1,862	23·75
Indians	...	...	...	51,027	1,067	20·91
Others	...	...	...	13,001	178	13·67
Total ...				429,645	9,129	21·24

“ C ”

Infantile death rate for the last 12 years.

Year					Death under one year	Death rate per mille
1338 A. H.	...	...	...	...	1312	136·76
1339 „	...	...	...	...	1980	194·98
1340 „	...	...	...	...	1704	165·35
1341 „	...	...	...	...	1530	161·73
1342 „	...	...	...	...	1401	126·27
1343 „	...	...	...	...	1689	151·45
1344 „	...	...	...	...	1924	169·24
1345 „	...	...	...	...	2248	163·64
1346 „	...	...	...	...	2073	158·66
1347 „	...	...	...	...	1963	127·71
1348 „	...	...	...	...	1231	137·88
1930 A. D.	...	...	...	...	2395	143·02
1931 „	...	...	...	...	1907	122·12

“ D ”

Distribution of deaths according to sex and nationality for the year 1931 A.D.

Nationality				Male	Female	Total
Europeans	...	...	...	1	...	1
Eurasians	...	...	...	1	1	2
Malays	...	...	...	3,278	2,741	6,019
Chinese	...	...	...	1,331	531	1,862
S. Indians	...	...	...	584	451	1,035
N. Indians	...	...	...	20	12	32
Others	...	...	...	95	83	178
Total				5,310	3,819	9,129

“ E ”

Births according to sex and nationality for the year 1931 A.D.

Nationality				Male	Female	Total
Europeans	...	...	...	1	...	1
Eurasians	...	...	...	3	1	4
Malays	...	...	...	5,592	5,092	10,684
Chinese	...	...	...	1,656	1,294	2,950
S. Indians	...	...	...	855	764	1,619
N. Indians	...	...	...	37	21	58
Others	...	...	...	147	152	299
Total				8,291	7,324	15,615

“ F ”

Still births according to sex and nationality for the year 1931 A.D.

Nationality				Male	Female	Total
Europeans	...	...	...	...	...	...
Eurasians	...	...	...	...	...	...
Malays	...	...	...	331	224	555
Chinese	...	...	...	59	47	106
S. Indians	...	...	...	54	31	85
N. Indians	...	...	...	...	2	2
Others	...	...	...	3	5	8
Total				447	309	756

“ G ”

The Infantile death rate per thousand births amongst the principal nationalities for the year 1931 A.D. was:—

Malays	..	..	..	..	..	98.55
Chinese	..	..	..	..	..	144.06
Indians	..	..	..	..	..	237.32

14

“ H ”

The infantile mortality rates for the last 6 years were:—

Year			Malays	Chinese	Indians
1344 A.H.	...	...	142·93	166·18	485·44
1345 ..	...	...	144·30	122·61	407·07
1346 ..	...	...	128·46	136·96	406·34
1347 ..	...	...	111·95	136·72	262·96
1348 ..	...	...	117·25	141·06	255·43
1930 A.D.	...	...	124·33	144·24	252·09
1931 ..	...	...	98·55	144·06	237·32

“ I ”

Incidence of deaths according to ages and nationalities for the year 1931 A.D.

Ages					Europeans	Eurasians	Malays	Chinese	S. Indians	N. Indians	Others	Total	
Under 1 year	...	...	...	...	2	1,053	425	392	6	29	1,907
1 to 4 years	...	...	...	...	...	825	185	121	3	14	1,148
5 „ 14	...	...	...	...	...	543	136	71	1	12	763
15 „ 24	...	...	...	...	...	303	61	119	3	14	500
25 „ 34	...	...	...	1	...	615	225	181	6	16	1,044
35 „ 44	...	...	...	...	...	560	205	71	4	12	852
45 „ 54	...	...	...	...	...	605	300	27	3	22	957
55 „ 64	...	...	...	...	...	486	206	15	5	21	733
65 „ 74	...	...	...	...	...	426	76	19	1	17	539
75 years and over	...	...	...	...	...	603	43	19	...	21	686
Total					...	1	2	6,019	1,862	1,035	32	178	9,129

“ J ”

Cases of Infectious Diseases reported to Health Office, during 1931 A.D.

Diseases.	Cases.			Deaths.
Chicken-pox 52	..
Small-pox 2	1
Measles 144	1
Mumps 32	..
Typhoid 44	3
Para Typhoid 3	1
Cerebro Spinal Fever 2	..
Diphtheria 11	2
Total			.. 290	8

“ K ”

Table shewing Principal Causes of Deaths (according to Register of Deaths) for the year 1931 A.D.

Deaths from Preventable Diseases:—

	Fever unspecified	..	..	..	..	3,900
	Malaria	..	..	..	..	182
	Tuberculosis	..	..	..	..	289
	Dysentery Amoebic	..	..	..	..	33
	„ Bacillary	..	..	..	..	10
	Ankylostomiasis	..	..	..	..	490
	Syphilis	..	..	..	..	7
	Lobar Pneumonia	..	..	..	..	63
	Septicaemia	..	..	..	..	10
	Influenza	..	..	..	..	12
	Yaws (Puru)	..	..	..	..	8
	Small-pox	..	..	..	..	1
5,089	Other Infective Diseases	..	..	..	..	84

Deaths from General Diseases:—

	Digestive System	..	..	..	..	169
	Respiratory System	..	..	..	..	221
	Nervous System	..	..	..	..	80
	Circulatory System	..	..	..	..	36
	Urinary System	..	..	..	..	22
	Affections connected with Pregnancy and Parturition	..	..	..	..	288
	Tumours	..	..	..	..	19
	Premature births	..	..	..	..	38
	Infantile Convulsions	..	..	..	..	1,805
	General, accident, old age, ill-defined conditions &c.	..	..	..	..	1,362
4,040					Total	9,129

“ L ”

SCHOOL FIGURES.

1. Vernacular Schools examined by Health Staff:—

(a)	Total number of children in Register	..	..	4,127
(b)	Total number of children inspected	..	..	3,618

Diseases.	Cases.	Percentage.
Spleen-enlargement of	.. 160	4.41
Anaemia	.. 143	3.95
Eye diseases	.. 38	1.05
Scabies	.. 9	.21
Yaws	.. 123	3.39
Ear diseases	.. 8	.22
Dental Caries (Class I)	.. 445	12.29
„ „ („ II)	.. 408	11.27
„ „ („ III)	.. 395	10.91
Not vaccinated	.. 243	6.99

2. Schools visited by the Lady Medical Officer.

Three schools, Sebrang Perak, Yen, and Kampong Bharu, were visited by the Lady Medical Officer. The first two were thoroughly examined and results of injections are given on the tables. Kampong Bharu was examined for intestinal parasites only.

Out of 43 examined, 24 were found to be suffering from Ascaris, infection, and 2 with Ankylostomiasis. These all received treatment.

Sebrang Perak School received treatment for vermin, and urgent cases of illness in Sebrang Perak and Yen Schools were treated.

Vaccination of all children who had not been vaccinated within the last three years was carried out in Sebrang Perak and Yen.

Some of the outstanding points noted on inspections are as follows:—

Tonsils:— Out of the 252 children, examined, 140 of 55% had enlarged Tonsils, of whom 55 or 21% of the whole were in urgent need of operations for greatly enlarged tonsils.

Enlarged glands neck:— 82% of the whole had enlarged glands.

Dental caries is deplorably prevalent. Few children, in fact, are free from it, the 223 cases noted being 88% of the whole; 151 or 59% had four or more carious teeth in any number up to 16. The secondary results of the dental caries are of course disastrous; it is responsible for many of the cases of anaemias and various illness caused by absorption of poisons from the mouth.

Malaria:— The spleen rate was 7% of the whole.

Liver:— 26% of the whole had enlarged livers.

Defective vision:— Of the 252 children examined, 9 had defective vision or 3%.

				No. of Children examined	Good	Fairly Good	Fair
Sebrang Perak	...	...	...	146	66	59	21
Yen	...	...	...	106	38	35	33
Total				252	104	94	54

Diseases.						No. of cases.	
Vermin	..	..	..	..	..	193	
Anaemia	..	..	..	..	..	10	
Slight anaemia	..	..	..	..	..	77	
Ringworm	..	..	..	..	..	6	
Leucoderma	..	..	..	..	..	43	
Septic wound	..	..	..	..	..	1	
Defective vision	..	..	..	..	..	10	
Bad vision	..	..	..	..	..	1	
External eye diseases	..	..	..	..	..	4	
Tonsils	+	..	..	..	..	55	
„	+ +	..	..	..	..	95	
Hyperaemia and hyperplasia	..	..	..	..	..	78	
Adenoids	..	..	..	..	..	19	
Nasopharyngeal catarrh	..	..	..	..	..	4	
Epistaxis	..	..	..	..	..	1	
Dental caries—3 or less teeth decayed	..	..	..	..	..	72	
„ „ —4 and more teeth decayed	..	..	..	..	..	151	
Total						828	

				No. of cases.
General condition below normal	..	..	..	148
Diseases—Circulatory System	..	..	..	87
„ —Respiratory System	..	..	..	6
Skin Diseases	..	..	..	59
Eye Diseases	..	..	..	14
Ear Diseases	..	..	..	9
Throat and Noses Diseases	..	..	..	252
Dental caries	..	..	..	223
Spleen enlarged	..	..	..	19
Liver enlarged	..	..	..	67
Enlarged glands neck	..	..	..	207
Deformities	..	..	..	1
Goitre	..	..	..	7
Fever	..	..	..	6
Yaws	..	..	..	3
Requiring vaccination	..	..	..	92
Vermin	..	..	..	193
Total				1,393

3. Chinese Schools examined by Health Staff:—

Total number of children in Register	..	..	..	685
Total number of children inspected	..	..	..	658

Diseases.			Cases.	Percentage.
Spleen—enlargement of	..	..	12	1.82
Anaemia	..	..	10	1.52
Eye diseases	..	..	1	.15
Scabies	..	..	8	1.21
Yaws	..	..	5	.74
Ear diseases	..	..	..	..
Dental Caries (Class I)	..	..	50	7.43
„ „ („ II)	..	..	68	10.18
„ „ („ III)	..	..	82	12.44
Not vaccinated	..	..	33	5.01

“ M ”

Summary of work done in Health Office Laboratory—1931.

Numbers of smears examined:—

Penile	..	..	..	..	2
Prostatic	..	..	..	..	4
Urethral	..	..	..	..	12
Pus	..	..	..	..	3
Eye	..	..	..	..	2
Ulcer	..	..	..	..	2
Blood	..	..	..	..	11
Stool—number of samples examined	..	..	..	..	34
Urine—	..	..	..	..	37
Sputum—	..	..	..	..	10

Blood:—

Blood sugar estimation	..	..	..	..	7
Blood counts	..	..	..	..	4
Differential counts	..	..	..	..	4
Haemoglobin estimation	..	..	..	..	4

Bacteriological:—

Pus for culture	..	..	..	..	..	1
Stool for culture	..	..	..	..	..	27
Urine	„	..	..	..	..	10
Milk	„	..	..	..	..	1
Throat swabs for culture	..	..	..	..	..	98
Blood culture	..	..	..	..	..	2

Serological:—

Widal	..	..	..	..	..	107
Weil-felix	..	..	..	..	..	10

Water:—

Examination of sediment	..	..	..	..	33
Bacteriological examination	..	..	..	..	60
PH estimation	..	..	..	..	2
Estimation of chlorides	1

Vaccine:—

Preparation of autogenous vaccine	1
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Guinea pig experiments:—

For tuberculosis	1
For leptospirosis	9
For virulence of B. diphtheriae			1

Miscellaneous:—

Examination for presence of blood in stains	..	..	3
„ „ spermatozoa	..	..	2
Identification of maggots	..	..	1

“ N ”

Population by nationalities of European holdings.

Nationalities			Labourers		Dependents		Infants	Total
			Males	Females	Adults	Children		
Malays	...	...	1,400	931	207	589	156	3,283
Indians	...	...	11,923	6,023	2,057	4,922	1,654	26,579
Chinese	...	...	1,095	17	39	20	1	1,172
Javanese	...	...	95	41	16	12	7	171
Others	...	...	18	3	3	2	...	26
Total	...	...	14,531	7,015	2,322	5,545	1,818	31,231

“ O ”

Population by nationalities of Native holdings.

Nationalities			Labourers		Dependents		Infants	Total
			Males	Females	Adults	Children		
Malays	...	...	5,192	4,004	421	1,948	257	11,822
Indians	...	...	1,488	489	288	431	105	2,801
Chinese	...	...	5,388	358	396	492	91	6,725
Javanese	...	...	42	32	9	10	1	94
Others	...	...	99	5	10	23	1	138
Total	...	...	12,209	4,888	1,124	2,904	455	21,580

Total visits to Estates by Senior Health Officer, Health Officer, and Staff—400.

“ P ”

Deaths by nationalities on Estates of European holdings.

Nationalities			Labourers	Dependents		Infants	Total
				Adults	Children		
Malays	...	...	4	3	6	5	18
Indians	...	...	22	27	24	138	211
Chinese	...	...	...	1	...	...	1
Javanese	...	...	...	1	...	...	1
Others	...	...	...	...	...	...	...
Total	...	...	26	32	30	143	231

“ Q ”

Total labourers and dependents admitted to Government Hospitals from European holdings with deaths.

1. Total admissions	..	..	..	..	..	473
2. Total deaths	..	..	..	..	..	37

“ R ”

Deaths by nationalities on Estates of Native holdings.

Nationalities			Labourers	Dependents		Infants	Total
				Adults	Children		
Malays	...	...	5	5	...	4	14
Indians	...	...	3	5	1	7	16
Chinese	...	...	1	2	...	...	3
Javanese	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...
Total	...	...	9	12	1	11	33

“ S ”

Total labourers and dependents admitted to Government Hospitals from Native holdings with deaths.

1. Total admissions	..	..	..	..	..	26
2. Total deaths	..	..	..	..	..	3

“ T ”

Comparative table of total estate population, total deaths, and death rates for the years 1930 and 1931 A.D.

1930 A.D.

Class of Estates		Population	Deaths in lines	Deaths in Hospital	Total Deaths	Death rate	Total death rate
European owned	...	42,514	374	369	743	17.4	...
Native owned	...	12,292	19	17	36	2.9	...
Total	...	54,806	393	386	779	...	14.2

1931 A.D.

Class of Estates		Population	Deaths in lines	Deaths in Hospitals	Total deaths	Death rate	Total death rate
European owned	...	31,231	231	37	268	8.5 1.6	...
Native owned	...	21,580	33	3	36	...	...
Total	...	52,811	264	40	304	...	5.7

APPENDIX—U.

ANNUAL RETURN OF INDOOR PATIENTS, TREATED IN HOSPITALS
IN KEDAH, DURING 1931 A. D.

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
INFECTIVE DISEASES.						
Chicken-pox ...	...	10	...	10	1	
Diphtheria ...	...	10	2	10	...	
Dysentery Amœbic ...	8	152	17	160	8	
„ Bacillary ...	11	88	12	99	7	
Enteric Fever ...	3	25	4	28	4	
Erysipelas ...	2	9	1	11	...	
Gonorrhœa ...	8	188	...	196	10	
Gonorrhœal Arthritis ...	...	12	...	12	...	
Gonorrhœal Rheumatism ...	3	30	...	33	2	
Gonorrhœal Conjunctivitis ...	1	4	...	5	...	
Gonorrhœal Ophthalmia ...	...	2	...	2	...	
Influenza ...	...	310	9	310	1	
Leprosy ...	6	62	5	68	1	
Malaria :—						
(a) Benign Tertian ...	35	1,072	20	1,107	41	
(b) Quartan ...	2	46	3	48	2	
(c) Malignant Tertian ...	22	818	59	840	13	
(d) Mixed Infection ...	3	84	4	87	...	
(e) Type Undiagnosed ...	18	460	8	478	19	
(f) Malarial Cachexia ...	12	162	8	174	9	
(g) Blackwater Fever ...	...	1	1	1	...	
Measles ...	...	14	2	14	1	
Mumps ...	...	7	...	7	1	
Phagedœna ...	...	3	...	3	...	
Pneumonia ...	8	144	78	152	2	
Pyæmia ...	...	3	...	3	1	
Pyrexia of uncertain origin ...	2	45	5	47	...	
Rheumatism ...	...	28	...	28	1	
Septicæmia ...	1	16	25	17	...	
Pott's Disease ...	...	1	1	1	...	
Syphilis :—						
(a) Primary ...	5	38	...	43	4	
(b) Secondary ...	12	114	...	126	15	
(c) Tertiary ...	...	50	6	50	8	
Tetanus ...	...	4	3	4	...	
Tuberculosis :—						
(a) General ...	1	2	1	3	...	
(b) Phthisis ...	23	274	115	297	32	
Yaws ...	1	23	...	24	1	
Other Infective Diseases ...	...	42	2	42	4	
INTOXICATIONS.						
Alcoholism ...	...	5	...	5	...	
Opium habit ...	...	62	...	62	1	
Other Intoxications ...	1	...	...	1	...	

Diseases			Remained	Admitted	Died	Total	Remaining	Remarks
GENERAL DISEASES.								
Anæmia	...	...	...	47	11	47	1	
Beri-beri	...	...	4	18	4	22	5	
Diabetes	...	...	...	2	...	2	1	
Gout	...	...	...	4	4	4	...	
Osteo-arthritis	...	...	...	3	1	3	...	
Marasmus	...	...	...	1	7	1	...	
Other General Diseases	...	...	12	109	31	121	16	
CERTAIN MORBID CONDITIONS INCIDENT TO VARIOUS PARTS.								
Malformations	...	...	...	3	...	3	2	
New Growth, Non-malignant	...	...	...	4	1	4	...	
Do. Malignant	...	...	2	29	10	31	2	
Cyst	...	...	...	14	...	14	...	
Other Morbid Conditions	...	...	1	12	4	13	...	
DISEASES OF THE NERVOUS SYSTEM.								
Nerves :—								
Neuritis	...	...	12	26	1	38	6	
Multiple Neuritis	...	...	...	4	...	4	...	
Other Diseases of the Nerves...	...	...	...	32	1	32	2	
Spinal Cord and Membranes :—								
Myelitis	...	...	1	11	1	12	1	
Locomotor ataxia	...	...	4	6	2	10	3	
Brain and Membranes :—								
Meningitis	...	...	...	4	6	4	...	
Hæmorrhage	...	...	...	1	1	1	...	
Other Diseases of Brain and Membranes	...	...	2	5	1	7	...	
Nervous Disorders :—								
Apoplexy	...	...	...	6	3	6	...	
Paraplegia	...	...	4	3	...	7	3	
Hemiplegia	...	...	4	21	7	25	2	
Convulsions	...	...	...	8	4	8	...	
Epilepsy	...	...	1	8	2	9	...	
Neuralgia	...	...	...	12	...	12	...	
Hysteria	...	...	...	1	...	1	...	
Neurasthenia	...	...	...	1	...	1	...	
Eclampsia	...	...	...	1	1	1	...	
Other Nervous Disorders	...	...	1	19	2	20	2	
Mental Diseases :—								
Mania	...	...	5	...	...	5	4	
Delusional insanity	...	...	...	4	...	4	...	
General Paralysis of the insane	...	...	1	3	...	4	1	
Dementia	...	...	1	...	...	1	...	
Other Mental Diseases	...	...	...	75	...	75	3	

Diseases			Remained	Admitted	Died	Total	Remaining	Remarks
DISEASES OF THE EYE.								
Conjunctivitis	...	...	...	74	...	74	1	
Trachoma	...	...	1	5	...	6	...	
Keratitis	...	...	...	6	...	6	1	
Ulcer of Cornea	...	...	2	20	...	22	3	
Iritis	...	...	...	6	...	6	1	
Glaucoma	...	...	...	1	...	1	1	
Hypopyon	...	...	...	1	...	1	...	
Cataract	...	...	6	8	...	14	5	
Panophthalmitis	...	...	1	7	...	8	1	
Blepharitis	...	...	...	3	...	3	...	
Other Eye Diseases	...	...	9	36	1	45	11	
DISEASES OF THE EAR.								
Inflammation	...	...	1	5	...	6	...	
Other Ear Diseases	...	...	1	25	...	26	...	
DISEASES OF THE NOSE.								
Inflammation	...	...	...	4	...	4	1	
Other Nose Diseases	...	...	...	5	...	5	1	
DISEASES OF THE CIRCULATORY SYSTEM.								
Pericarditis	...	...	...	6	...	6	...	
Endocarditis	...	...	1	2	2	3	...	
Valvular Disease	...	...	...	9	...	9	...	
Myocarditis	...	...	1	15	8	16	2	
Dilatation of Heart	...	...	...	8	1	8	1	
Syncope	...	...	...	1	...	1	...	
Disordered action of Heart	...	...	...	3	2	3	...	
Phlebitis	...	...	...	4	...	4	...	
Other Diseases of the System	...	...	...	53	18	53	2	
DISEASES OF THE RESPIRATORY SYSTEM.								
Asthma	...	...	5	96	4	101	6	
Coryza	...	...	...	7	...	7	1	
Laryngitis	...	...	...	9	...	9	...	
Bronchitis	...	...	22	359	13	381	19	
Broncho-pneumonia	...	...	5	52	22	57	2	
Gangrene of Lung	...	...	...	1	1	1	...	
Pleurisy	...	...	2	25	5	27	...	
Empyema	...	...	...	4	1	4	1	
Other Diseases of the System	...	...	1	10	...	11	1	
DISEASES OF THE DIGESTIVE SYSTEM.								
Stomatitis	...	...	1	7	...	8	...	
Ulceration of mouth	...	...	1	...	...	1	...	
Gangrene of mouth	...	...	...	1	1	1	...	
Pyorrhœa alveolaris	...	...	...	5	...	5	1	
Caries of tooth	...	...	...	13	...	13	...	
Sore throat	...	...	...	1	...	1	...	
Tonsillitis	...	...	...	5	...	5	...	
Inflammation of pharynx	...	...	...	7	...	7	...	
Gastritis	...	...	2	37	...	39	1	
Ulceration of stomach	...	...	...	7	1	7	2	
Dyspepsia	...	...	1	10	...	11	...	
Enteritis	...	...	1	37	13	38	...	
Appendicitis	...	...	1	9	...	10	1	
Colitis	...	...	...	9	1	9	4	
Ulceration of intestines	...	...	...	1	...	1	1	
Sprue	...	...	...	1	...	1	...	

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
DISEASES OF THE DIGESTIVE SYSTEM—(Contd.)						
Hernia ...	2	27	1	29	...	
Intestinal obstruction ...	...	1	1	1	...	
Diarrhœa ...	3	62	2	65	2	
Gingivitis ...	...	1	...	1	...	
Liver abscess ...	...	8	2	8	1	
Constipation ...	1	25	...	26	...	
Colic ...	1	36	...	37	...	
Ischio-rectal abscess ...	...	12	...	12	2	
Fissure of anus ...	2	...	...	2	...	
Fistula in ano ...	...	12	...	12	...	
Hemorrhoids ...	1	22	...	23	1	
Hepatitis ...	3	20	...	23	1	
Cirrhosis of liver ...	3	41	17	44	4	
Jaundice ...	1	7	...	8	...	
Peritonitis ...	...	16	9	16	...	
Ascites of unknown origin ...	1	3	1	4	...	
Other Diseases of the System ...	...	53	6	53	2	
DISEASES OF THE LYMPHATIC SYSTEM.						
Spleen, Rupture ...	...	1	1	1	...	
Bubo ...	7	51	...	58	3	
Suppuration of Glands ...	...	9	...	9	...	
Lymphangitis ...	...	2	1	2	...	
Other Diseases of the System ...	2	20	1	22	...	
DISEASES OF THE THYROID BODY						
... ..	1	1	...	2	...	
DISEASES OF THE URINARY SYSTEM.						
Acute Nephritis ...	2	25	8	27	1	
Bright's Disease ...	...	16	7	16	2	
Cystitis ...	...	6	...	6	...	
Calculus ...	...	5	...	5	...	
Retention of Urine ...	...	11	...	11	1	
Incontinence of Urine ...	...	2	2	2	...	
Other Diseases of the System ...	1	14	8	15	1	
DISEASES OF THE GENERATIVE SYSTEM.						
<i>Male :</i>						
Stricture ...	...	11	...	11	...	
Urethral fistula ...	1	2	...	3	...	
Phimosis ...	...	21	...	21	2	
Ulcer Penis ...	...	15	...	15	1	
Soft chancre ...	...	20	...	20	3	
Scrotum, Abscess ...	...	1	...	1	...	
Hydrocele ...	3	17	...	20	...	
Orchitis ...	...	18	...	18	1	
Epididymitis ...	1	13	...	14	2	
Other Diseases, Male Organs ...	2	75	...	77	5	
<i>Female :</i>						
Metritis ...	...	1	...	1	...	
Erosion of cervix ...	...	1	...	1	...	
Displacement and distortions ...	...	2	...	2	...	
Vulva, Ulcer ...	...	1	1	1	...	
Other Diseases, Female Organs...	...	37	1	37	2	

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
AFFECTIONS CONNECTED WITH PREGNANCY AND PARTURITION.						
Natural labour	4	145	...	149	2	
Difficult labour	2	11	2	13	1	
Abortion ... ..	...	20	...	20	...	
Retention of placenta ... ..	...	6	1	6	...	
Still-birth ... ..	...	1	1	1	...	
Premature birth ... ..	...	6	4	6	...	
Post-partum hæmorrhage ... ..	...	2	1	2	...	
Puerperal sapræmia ... ..	...	8	2	8	2	
Other affections	6	68	4	74	7	
DISEASES OF THE FEMALE BREAST						
... ..	...	2	...	2	...	
DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.						
Periostitis	1	12	1	13	2	
Caries of bones ... ..	...	4	...	4	1	
Necrosis of bones	1	4	1	5	...	
Arthritis	4	33	...	37	7	
Synovitis ... ..	...	29	...	29	1	
Caries of Spine	1	1	...	2	...	
Myalgia ... ..	...	26	...	26	...	
Lumbago ... ..	...	4	...	4	...	
Other Diseases of the Bones and Organs of Locomotion	1	24	2	25	1	
DISEASES OF THE CONNECTIVE TISSUE.						
Cellulitis	7	69	1	76	8	
Abscess	6	200	1	206	8	
Gangrene	7	10	2	17	2	
Other Diseases of the Connective Tissue	3	39	1	42	5	
DISEASES OF THE SKIN.						
Osteitis ... ..	...	1	...	1	1	
Urticaria	1	2	...	3	1	
Eczema	1	65	...	66	1	
Boil ... ..	...	4	...	4	...	
Carbuncle	2	9	1	11	1	
Epithelioma ... ..	...	4	...	4	...	
Herpes ... ..	...	3	...	3	...	
Herpes Zoster ... ..	...	2	...	2	...	
Psoriasis ... ..	...	1	...	1	...	
Ulcer	73	1,053	1	1,126	90	
Other Skin Diseases	2	43	...	45	3	
INJURIES.						
General ... ..	...	2	...	2	...	
Wounds, Local	34	889	6	923	22	
Sprains	2	32	...	34	1	
Fractures, simple	9	88	...	97	8	
Do. compound	5	37	4	42	6	
Dislocations	1	7	...	8	...	
Drowning ... ..	...	1	...	1	...	
Burns ... ..	...	21	1	21	1	
Dog bite	4	70	...	74	3	
Snake bite ... ..	...	12	...	12	2	
Centipede bite ... ..	...	2	...	2	...	
Other local injuries	5	454	15	459	12	

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
POISONS.						
Other Poisons ...	...	5	...	5	1	
PARASITES.						
Ascaris Lumbricoides ...	13	273	3	286	10	
Ankylostomiasis ...	21	588	19	609	25	
Filaria ...	...	3	...	3	...	
Other Nematoda ...	1	...	...	1	...	
Tinea Circinata ...	...	3	...	3	...	
Do. Imbricata ...	...	8	...	8	...	
Other Vegetable Parasites ...	...	3	...	3	...	
Scabies ...	...	48	...	48	...	
Pediculosis ...	...	2	...	2	...	
Other Animal Parasites ...	1	21	...	22	1	
UNDER OBSERVATION ...	8	635	...	643	35	
NO DISCOVERABLE DISEASE ...	12	315	...	327	3	
TOTAL ...	584	12,111	738	12,695	626	

APPENDIX—V.

ANNUAL RETURN OF RAINFALL—1931 A.D.

MONTHS, 1931 A.D.		Alor Star		Langkawi		Sungei Patani		Baling		Kulim		Bandar Bahru		Padang Besar		Perlis	
		In.	Mm.	In.	Mm.	In.	Mm.	In.	Mm.	In.	Mm.	In.	Mm.	In.	Mm.	In.	Mm.
January	...	...	93	2	17	6	37	3	13	8	11	8	32	3	63	...	79
February	...	...	21	1	73	1	60	2	70	9	69	3	71	...	26	...	32
March	...	...	25	1	23	1	10	2	40	4	78	4	49	...	68	1	38
April	...	...	86	10	93	6	97	13	30	15	88	6	25	5	30	11	79
May	...	...	70	8	50	9	88	10	45	10	97	6	53	3	80	6	95
June	...	...	91	5	05	14	61	12	51	10	54	9	56	7	41	11	49
July	...	...	57	14	82	3	33	10	01	3	92	4	20	1	41	5	11
August	...	...	33	13	67	4	86	5	95	5	67	3	33	10	26	13	28
September	...	...	11	11	41	8	24	8	41	11	47	6	99	4	22	8	81
October	...	...	63	12	39	15	40	13	24	14	10	10	22	14	95	13	39
November	...	...	24	4	17	6	07	7	64	11	54	7	11	10	02	2	66
December	...	...	23	9	12	14	63	13	02	18	69	8	36	16	21	10	72
TOTAL		95	97	95	19	93	06	102	76	125	36	79	07	78	15	86	69

APPENDIX—W.

METEOROLOGICAL RETURN OF HOSPITAL, ALOR STAR, FOR 1931 A.D.

MONTHS, 1931 A.D.		TEMPERATURE				HYGROMETER				Total Rainfall	Greatest Rainfall during 24 hours	Highest Shade Temperature=99.0° on 27th March. Lowest Shade Temperature=62.0° on 22nd February.
		Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity			
January	80.2	89.8	75.1	14.7	75.2	.779	71.8	.77.5	.93	.44
February	82.0	94.7	74.8	19.9	75.4	.759	71.0	69.5	1.21	.58
March	84.3	96.7	76.1	20.6	77.6	.818	73.2	69.6	1.25	.42
April	83.3	91.3	74.7	16.6	78.3	.868	75.0	76.2	5.86	1.03
May	83.3	90.2	75.2	15.0	78.6	.883	75.5	77.7	4.70	1.38
June	82.4	88.4	75.1	13.3	78.2	.880	75.4	79.6	18.91	6.50
July	81.5	87.3	74.2	13.1	76.9	.834	73.8	77.7	4.57	1.62
August	81.9	87.9	75.0	12.9	77.5	.857	74.6	78.8	7.33	1.48
September	80.9	86.6	74.1	12.5	76.9	.846	74.2	80.3	8.11	1.48
October	80.4	85.9	74.0	11.9	76.9	.854	74.5	82.4	17.63	3.32
November	80.4	88.4	72.6	15.8	76.0	.812	73.0	78.3	9.24	3.38
December	80.0	87.3	71.8	15.5	74.9	.769	71.4	75.1	16.23	2.76

APPENDIX—X.

METEOROLOGICAL RETURN OF HOSPITAL, LANGKAWI, FOR 1931 A.D.

TEMPERATURE				HYGROMETER				Total Rainfall	Greatest Rainfall during 24 hours	Highest Shade Temperature = 103° on 27th March. Lowest Shade Temperature = 70° on 2nd February, 10th March and 28th December.
...
January	83.8	91.7	74.3	81.0	76.5	.777	71.7	67.1	2.17	1.42
February	85.7	95.7	73.6	22.0	76.5	.749	70.6	60.9	1.73	1.08
March	87.8	97.7	74.3	23.4	79.0	.823	73.4	62.5	1.23	.73
April	85.5	94.4	75.6	18.8	79.5	.885	75.6	72.4	10.93	2.15
May	81.5	93.0	75.1	17.8	80.0	.987	78.9	91.9	8.50	1.50
June	83.4	92.3	74.5	17.8	79.2	.909	76.4	79.6	5.05	.75
July	81.4	89.7	73.2	16.5	77.7	.874	75.2	81.7	14.82	3.67
August	82.0	88.4	75.4	13.0	77.3	.843	74.1	77.9	13.67	2.37
September	81.0	87.7	73.5	13.7	77.6	.877	75.3	83.1	11.41	2.53
October	80.7	88.2	74.6	13.6	78.0	.900	76.1	85.6	12.39	2.61
November	82.3	89.3	74.4	14.9	76.3	.793	72.3	71.9	4.17	1.62
December	80.9	87.8	74.8	13.0	75.1	.764	71.2	72.5	9.12	2.89

Highest Shade Temperature = 103° on 27th March.
Lowest Shade Temperature = 70° on 2nd February.
10th March and 28th December.

APPENDIX—Y.

METEOROLOGICAL RETURN OF HOSPITAL, SUNGEI PATANI, FOR 1931 A. D.

MONTHS, 1931 A.D.		TEMPERATURE				HYGROMETER				Total Rainfall	Greatest Rainfall during 24 hours	Highest Shade Temperature=101° on 27th March. Lowest Shade Temperature=60° on 22nd November.
		Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity			
January	81.8	90.7	72.7	18.1	74.5	.723	69.6	66.6	6.37	1.90
February	83.3	95.0	72.0	22.7	74.7	.708	69.0	62.1	1.60	.85
March	87.1	97.2	74.2	23.0	77.9	.782	71.9	60.8	1.10	.40
April	84.9	94.9	73.8	21.1	78.7	.860	74.7	71.7	6.97	1.15
May	83.5	93.7	74.6	18.8	78.0	.857	74.6	74.8	9.88	3.45
June	82.5	93.0	73.8	19.0	78.1	.874	75.2	78.7	14.61	3.55
July	81.1	88.4	72.0	16.4	76.3	.812	73.0	76.6	3.33	.70
August	80.5	89.2	74.0	15.2	77.1	.863	74.8	83.0	4.86	1.04
September	77.8	88.5	73.6	14.9	75.8	.851	74.4	89.0	8.24	1.45
October	81.6	87.3	67.9	19.4	77.0	.837	73.9	77.7	15.40	2.21
November	82.8	89.6	71.0	18.6	76.3	.785	72.0	70.0	6.07	2.24
December	80.1	89.0	72.3	16.7	75.3	.785	72.0	76.3	14.63	3.35

APPENDIX—Z.

METEOROLOGICAL RETURN OF HOSPITAL, KULIM, FOR 1931 A.D

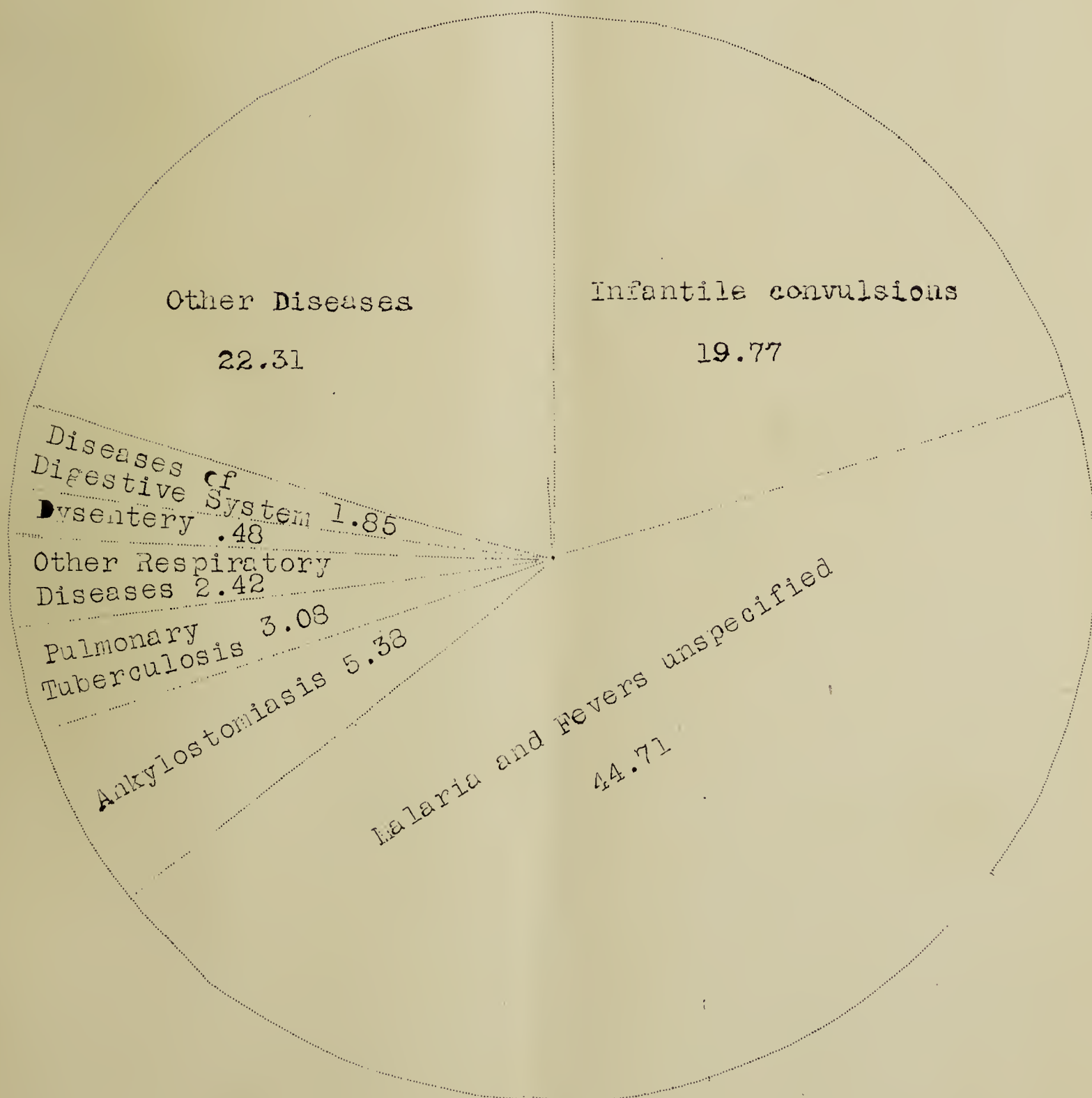
MONTHS, 1931 A.D.		TEMPERATURE				HYGROMETER				Total Rainfall	Greatest Rainfall during 24 hours	Highest Shade Temperature=99° on 2nd March. Lowest Shade Temperature=69° on 27th December.
		Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity			
January	81.1	91.6	72.2	19.4	76.6	.826	73.5	77.9	8.11	2.09
February	81.4	95.3	72.1	23.1	76.9	.837	73.9	78.2	9.69	1.48
March	84.0	96.9	73.1	23.8	78.2	.848	74.3	72.8	4.78	1.17
April	82.7	93.9	73.4	20.5	78.8	.906	76.3	81.1	15.88	3.05
May	83.5	93.4	72.7	20.7	79.6	.927	77.0	80.9	10.97	2.55
June	82.4	93.7	72.2	21.5	78.5	.897	76.0	81.1	10.54	1.77
July	82.1	91.0	71.4	19.6	76.5	.804	72.7	73.4	3.92	1.07
August	82.5	91.2	71.6	19.6	76.4	.793	72.3	71.4	5.67	1.52
September	81.8	90.9	71.5	19.4	76.4	.812	73.0	74.9	11.47	2.94
October	82.0	89.7	71.5	18.2	76.8	.820	73.3	75.1	14.10	3.03
November	82.0	89.6	71.0	18.6	77.0	.829	73.6	75.9	11.54	2.71
December	78.0	87.0	71.3	15.7	74.4	.782	71.9	81.6	18.69	3.10

PERCENTAGE OF DEATHS FROM CERTAIN DISEASES TO

TOTAL DEATHS IN THE STATE.

:-:-:

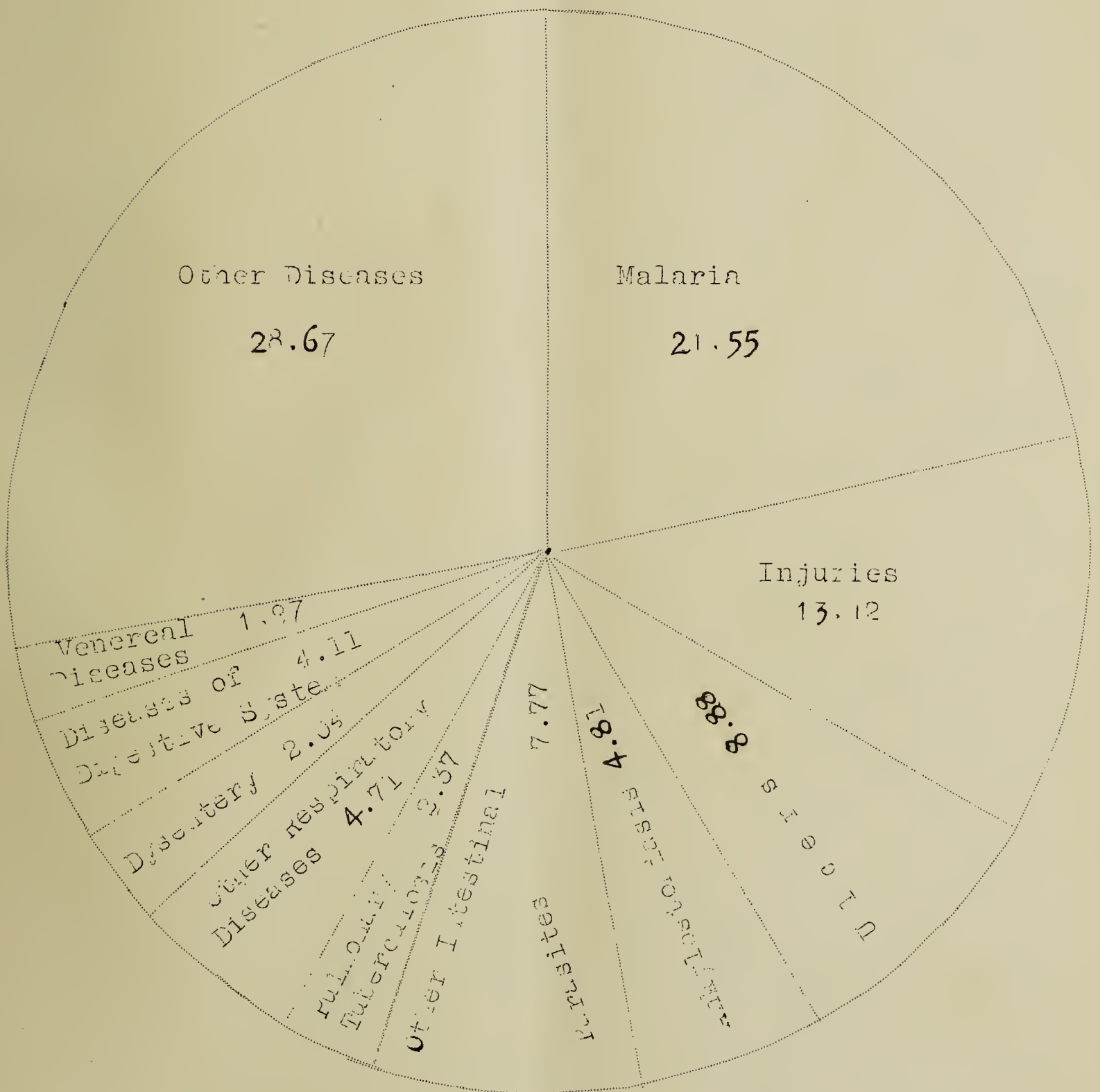
TOTAL DEATHS IN THE STATE - 9,129.

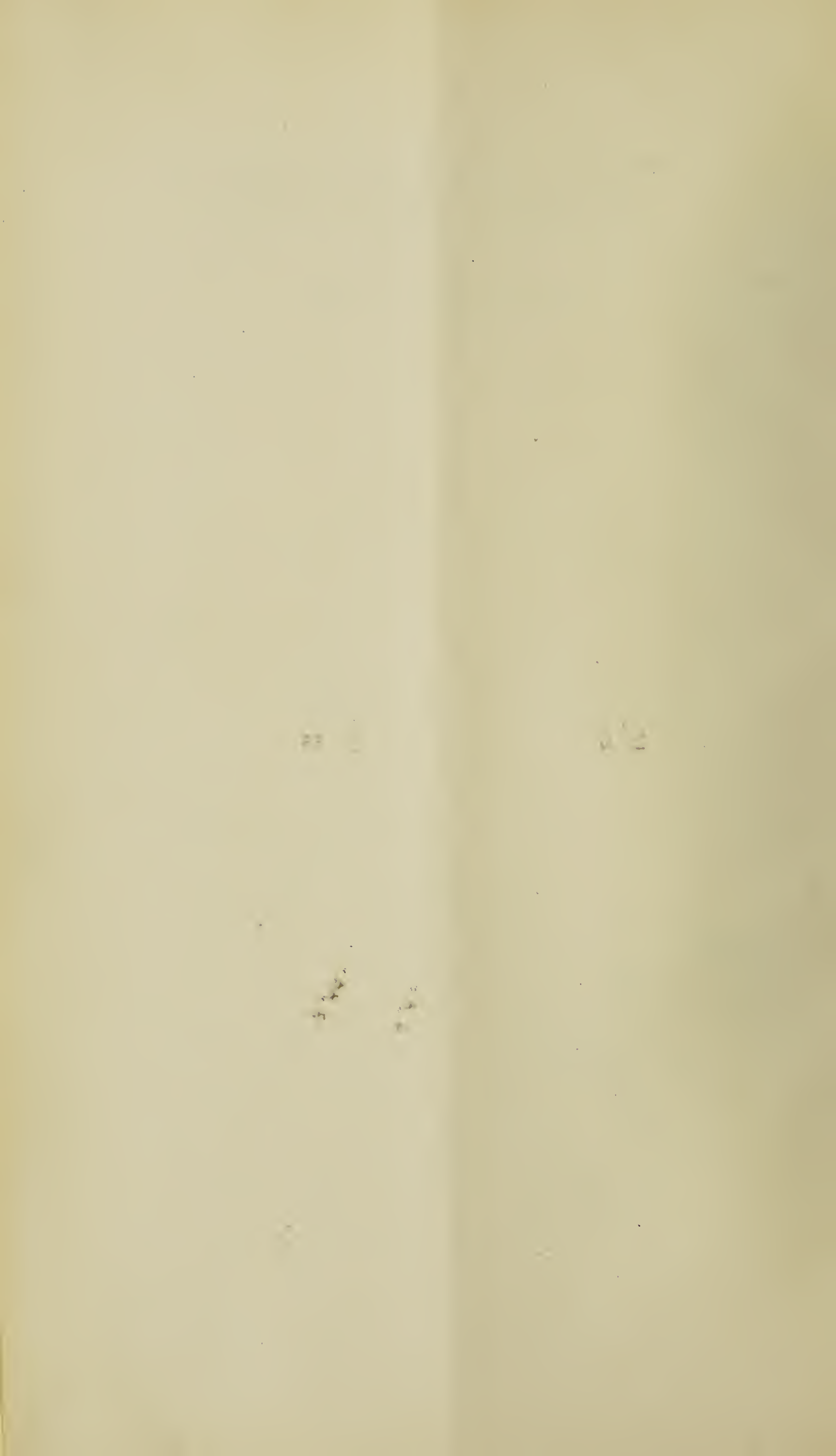


PERCENTAGE OF CASES OF CERTAIN DISEASES TO
TOTAL TREATED IN GOVERNMENT HOSPITALS

- : - : -

TOTAL TREATED - 12,695.



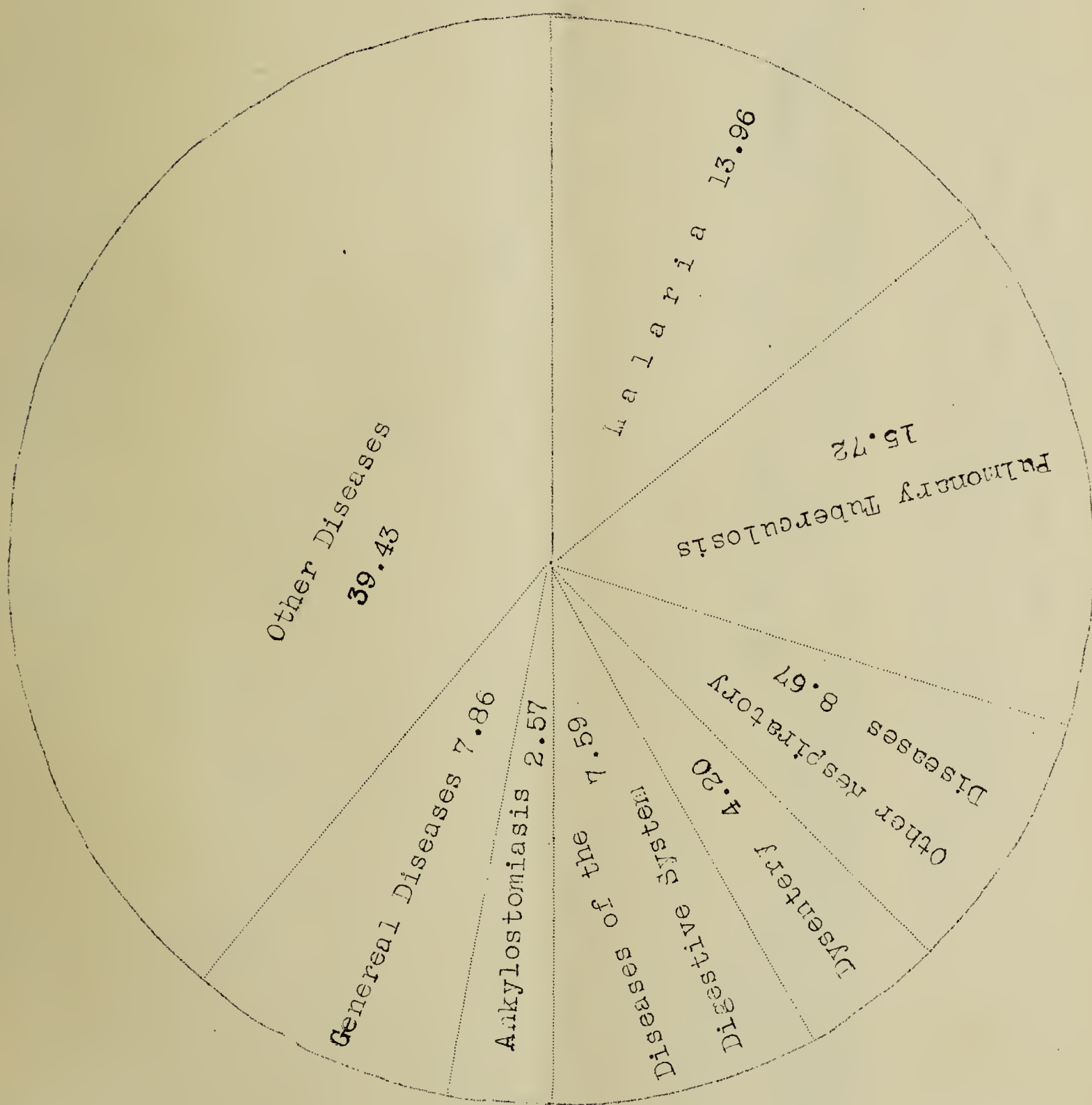


PERCENTAGE OF DEATHS OF CERTAIN DISEASES TO

TOTAL DEATHS IN GOVERNMENT HOSPITALS.

: - : - : - :

TOTAL DEATHS IN GOVERNMENT HOSPITALS, 738.



10/1

10/1



REFERENCE	
Other Diseases	Dysentery
Malaria	Other Bowel Diseases
Anky	Deaths
Pneumonia	ϕ



KEDAH

Scale, 12 Miles to 1 Inch

REFERENCE

- Metalled Road -----
- Route of Travelling Dispensary Ambulance -----
- Hospital or Dispensary ----- ○
- Places visited by Travelling Dispensary ----- x

MEDICAL AND SANITARY REPORT, PERLIS.

For the year ending 31st December, 1931 A. D.

ADMINISTRATION.

STAFF.

The appointments in the Medical Department are as follows:—

The State Surgeon, Kedah, who visits once a month, and oftener if required.

1 Assistant Surgeon.

1 Hospital Assistant, Grade I.

1 Dresser Grade III.

1 Vaccinator.

1 Midwife.

1 Dispensary Assistant.

1 Mosquito larvae collector and identifier.

CHANGES IN STAFF.

Mr. R. Sivasambandan being on study leave, a relief Assistant Surgeon from Kedah has acted from 5th August, 1931 in his place.

During the vacation leave of Hospital Assistant Mohamed Daud and 3rd Grade Dresser Hamzah, Second Grade Dresser Haroon was sent from Kedah to act in their places.

Due to the resignation from service of the former midwife, a new midwife had been appointed from 28-8-31.

FINANCIAL.

Revenue collected (1349)	\$ 2,242.54
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Expenditure (1349)	\$23,487.70
--------------------	----	----	----	-------------

There were 128 paying patients admitted during the year.

HEALTH.

One case of enteric fever (Malay) was admitted to the hospital during the year. He was discharged cured.

Nearly half the death in the State are due to fevers.

Respiratory diseases and Infantile.

Convulsions come next in order (Vide Appendix E).

367 cases of Malaria were admitted during the year to the hospital, 16 of which proved fatal. Kaki Bukit continues to be the most malarial part of the State.

Larval surveys by the larvae collector and identifier show the prevalent types as in Appendix K.

There was an outbreak of virulent Pneumonia cases. Hospital admissions showing 68.2 percentage mortality (Admission 44 Death 30). Most of these were Chinese from Kaki Bukit.

There was an increased mortality in the State, every Mukim showing a rise. Total deaths recorded amount to 951 as against 764 in the previous year. (Vide Appendix E.)

The Infant Mortality records show 179 as against 145 deaths in the previous year.

Births during the year have practically been at the same level as in the previous year (1,219 against 1,209 last year).

RABIES.

8 cases received Anti-Rabic Treatment during the year. Of these, two had no visible lesions but only received the treatment as a safety measure.

OFFICIALS.

The following table gives the Health Statistics of Government Officials (including subordinates) in Perlis.

	Europeans.	Asiatics.
Total number of officials resident	2	320
Average number resident	2	320
Total number on sick list	1	45
Total number of days on sick list	10 days	115
Average daily number on sick list	0.28	.3
Percentage of sick to average number resident	50	14.06
Average number of days on sick leave for each patient	10 days	2.6
Average sick time to each resident	5	.36
Total number invalided .. ..	..	..
Percentage of invalidings to total resident .. ..	..	.31
Total deaths .. ..	..	1
Percentage of deaths to total resident .. ..	..	.31
Percentage of deaths to average resident .. ..	..	.31
Number of cases of sickness contracted away from residence .. ..	..	..

SCHOOLS.

Regular fortnightly visits were made to 14 schools by the travelling dispensary. Of the Malay Vernacular Schools in Perlis (4 Girls' Schools and 19 Boys' Schools) 10 boys' schools were visited by the Assistant Surgeon with the following results.

Total Pupils on register	875
Total seen	797
Enlarged Spleen	299
Pupils showing no vaccination marks	54
Scabies	12
Diseases of the Eye	1
Ulcers and other skin diseases	16

35 School children had N.A.B. injections for yaws.

VACCINATIONS.

2,090 vaccinations were done (about 260 tubes of lymph were used).

Malays	1,796
Chinese	214
Siamese	56
Indians	23
Others	1
Total	2,090

\$773.80 were spent on vaccinations; roughly 37.02 cents per case.

VITAL STATISTICS.

(a) The population of Perlis for 1931 A.D. is estimated at 49,297.

The following is a comparative table for the last six years.

Year	Estimated Population	Births	Birth rate per mille	Deaths	Death rate per mille
1344 A. H.	44,600	809	18.13	767	17.19
1345 „	45,500	948	20.83	829	18.22
1346 „	46,400	940	24.26	722	15.56
1347 „	46,916	1,315	28.03	767	16.35
1930 A.D.	47,633	1,251	26.26	764	16.04
1931 „	49,297	1,219	24.74	951	19.29

The excess of births over deaths was 268 in 1931.

(b) Population according to races with deaths and death rate.

Races	Approximate Population	Deaths	Death rate per mille
Eurasians	6	...	...
Europeans	4	...	...
Chinese	6,500	162	24.92
Malays	40,021	732	18.29
Indians	972	14	14.4
Siamese	1,753	43	24.53

There were 179 deaths among infants up to one year old, the rate being 151.18.

(c) Infant death rate for the last six years was:—

Year	Deaths	Rate per mille	Corrected rate
1344 A. H.	105	129.79	133.59
1345 „	129	136.08	140.22
1346 „	94	100.00	103.75
1347 „	146	111.03	113.80
1930 A. D.	145	115.91	119.93
1931 „	179	146.84	151.18

The infantile death rate per thousand births excluding still births among the principal nationalities was:—

Malays.	Chinese.	Indians.	Siamese.
141.10	187.9	52.63	324.3

(d) Births according to Nationality.

European .. ..	..	..	..	..	..	..
Eurasian .. ..	..	..	..	..	..	1
Chinese .. ..	..	..	..	..	..	149
Malays .. ..	..	..	..	..	..	978
Indians .. ..	..	..	..	..	..	19
Siamese .. ..	..	..	..	..	..	37
Total						1,184
Males .. ..	..	..	..	..	..	603
Females .. ..	..	..	..	..	..	581
Total						1,184
Still births.						
Males .. ..	..	..	..	..	..	20
Females .. ..	..	..	..	..	..	15
Total						35
Total born .. ..	..	..	..	..	1,184—35	1,219.

(e) Still births according to Sex and Nationality.

Nationality				Males	Females	Total
European	...	...	...	...	...	...
Eurasian	...	...	...	...	...	...
Chinese	...	...	...	1	4	5
Malays	...	...	...	17	10	27
Indians	...	...	...	1	1	2
Siamese	...	...	...	1	...	1
Total				20	15	35

(f) Distribution of deaths according to Nationality and Diseases.

Diseases				European	Eurasian	Malays	Chinese	Indians	Siamese	Total
Fevers	352	56	6	22	436
Respiratory Diseases	80	49	2	3	134
Diarrhoea, Dysentery, etc.	24	12	...	2	38
Infantile convulsions	104	18	...	5	127
Deaths after abortion or child birth	15	2	2	1	20
Injuries and accidents	7	4	...	...	11
Other causes	73	20	4	4	101
Old age	77	1	...	6	84
Total				732	162	14	43	951

(g) Deaths according to Sex and Nationality.

Nationality				Males	Females	Total
Malays	...	...	...	377	355	732
Chinese	...	...	...	121	41	162
Indians	...	...	...	9	5	14
Siamese	...	...	...	22	21	43
Total				529	422	951

HOSPITALS AND DISPENSARIES.

GENERAL HOSPITAL, KANGAR.

The number of Indoor cases treated during the year was 1,099. There were 82 deaths, being a percentage of 7.5 to total treated. Excluding 26 deaths which occurred within 48 hours of admission, the death rate was 5.09.

Indoor patients according to Nationalities.

Nationality				No. treated	Deaths	Percentage of deaths	Deaths within 48 hours
Chinese	...	...	...	653	70	10.71	...
Indians	...	...	...	265	8	3.02	...
Malays	...	...	...	167	4	2.4	...
Javanese	...	...	...	2	...	...	...
Siamese	...	...	...	...	...	...	...
Others	...	...	...	1	...	...	...
Total				1,099	82	7.5	26

PREVAILING DISEASES.

Diseases	1346			1347			1348			1930 A. D.			1931 A. D.		
	Cases	Deaths	Percentage	Cases	Deaths	Percentage	Cases	Deaths	Percentage	Cases	Deaths	Percentage	Cases	Deaths	Percentage
Malaria ...	356	14	3.93	439	10	2.28	191	12	6.28	374	15	4.01	367	16	4.36
Dysentery Amoebic ...	27	3	11.11	21	3	14.29	12	...	...	7	11	4.29	12	1	8.3
„ Bacillary ...	1	...	...	...	...	...	...	...	...	3	1	33.33	6	11	6.7
Venereal Diseases ...	28	...	...	20	...	...	14	...	...	41	...	...	45	...	...
Pulmonary Tuberculosis ...	30	10	33.33	28	9	32.14	12	2	16.66	42	7	14.29	29	6	20.7
Pneumonia ...	...	...	...	...	...	...	...	...	...	...	...	...	44	30	68.2
Other lung complaints ...	56	9	16.07	68	17	25.00	64	11	17.19	85	19	22.35	62	4	6.4
Ankylostomiasis ...	83	5	6.02	36	4	11.11	15	1	6.66	45	1	2.22	48	...	...
Ulcers ...	49	...	...	62	...	...	29	...	...	81	...	...	57	...	...
Injuries ...	51	2	4.00	90	2	2.22	56	...	...	105	2	1.90	64	...	...
Other diseases ...	406	25	6.15	340	12	3.53	249	10	4.02	336	21	6.25	365	24	7.5
Total ...	1,087	68	6.2	1,104	57	5.16	642	36	5.61	1,119	67	6	1,099	82	7.5

(h) Incidence of deaths according to age and Nationality.

Ages				Malays	Chinese	Indians	Siamese	Total
1 year and under	...	...		138	28	1	12	179
5 years and under	...	...		106	11	2	4	123
15 do	...	...		48	8	2	4	62
25 do	...	...		75	15	3	... 4	97
35 do	...	...		61	30	3	4	98
45 do	...	...		43	23	1	2	69
50 do	...	...		40	14	2	1	57
55 do	...	...		38	17	...	2	57
65 do	...	...		70	9	...	7	86
75 do	...	...		62	4	...	1	67
Above 75 years	...	...		54	...	...	2	56
Total				735	159	14	43	951

Infectious Diseases with Deaths.

Diseases				Total treated	Deaths	Percentage of deaths
Dysentery	...	...		18	2	11.1
Enteric Fever	...	...		1	...	...
Erysipelas	...	...		3	...	...
Influenza	...	...		39	...	...
Pneumonia	...	...		44	30	68.2
Pulmonary Tuberculosis	...	...		29	6	20.7
Total				134	38	28.36

LABORATORY WORK.

Blood films were examined in 2,180 instances with the following results:—

Malaria B.T.	..	..	..	..	..	294
„ M.T.	..	..	..	..	..	221
„ Quartan	..	..	..	..	..	2
„ Mixed	..	..	..	..	..	36
Negative	..	..	..	..	..	1,627
Total						2,180

Other Specimens

Other specimens examined totalled 4,843 (Details vide Appendix B.)

Post Mortem Examinations.

Medicolegal	..	..	..	..	..	9
Clinical	..	..	..	..	..	37
Total						46

OUT DOOR DEPARTMENT.

Number of new cases	..	..	..	...	6,053
Repetitions	..	..	..	..	2,272

The Nationalities who received treatment were:—

Chinese	..	..	..	..	..	830
Indians	..	..	..	..	..	1,132
Malays	..	..	..	..	..	3,976
Siamese	..	..	..	..	..	34
Europeans	..	..	..	..	..	27
Eurasians	..	..	..	..	..	42
Japanese	..	..	..	..	..	4
Arabs	..	..	..	..	..	5
Javanese	..	..	..	..	..	3
Total						6,053

APPENDIX—A.

RETURN OF SICK OF THE INDOOR PATIENTS OF THE GENERAL HOSPITAL,
PERLIS, FOR THE YEAR 1931 A. D.

Specific Diseases	Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
INFECTIVE DISEASES.									
Dysentery Amœbic ...	1	11	12	10	...	1	1	...	
„ Bacillary ...	...	6	6	5	...	...	1	...	
„ Chronic ...	...	1	1	1	...	...	...	...
„ Unknown ...	...	1	1	1	...	...	...	...
Enteric Fever ...	...	1	1	1	...	...	...	...
Erysipelas ...	...	3	3	3	...	...	...	...
Gonorrhœa ...	1	12	13	13	...	...	...	...
Gonorrhœal Rheumatism ...	...	5	5	4	...	...	...	1	
„ Synovitis ...	1	6	7	7	...	...	...	...
„ Fibrositis ...	1	2	3	3	...	...	...	...
„ Conjunctivitis ...	...	2	2	2	...	...	...	...
Influenza ...	...	39	39	39	...	...	...	...
Malaria :—									
(a) Benign Tertian ...	9	188	198	190	...	...	...	8	
(b) Quartan ...	...	1	1	1	...	...	...	...
(c) Malignant Tertian ...	6	103	109	94	...	...	13	2	
(d) Mixed Infection ...	2	30	32	29	...	...	2	1	
(e) Type undiagnosed ...	...	20	20	20	...	...	...	...
(f) Chronic Malaria ...	1	6	7	5	...	...	1	1	
Pnenmonia ...	...	44	44	14	...	...	30	...	
Pyrexia of uncertain origin ...	...	8	8	8	...	...	...	...
Rheumatism ...	2	1	3	3	...	...	...	...
Syphillis :—									
(a) Primary ...	...	2	2	2	...	...	...	...
(b) Secondary ...	...	7	7	6	...	...	...	1	
(c) Tertiary ...	...	6	6	6	...	...	...	...
Tetanns ...	1	...	1	1	...	...	...	...
Tuberculosis :—									
Tubercular glands neck ...	...	1	1	...	...	...	...	1	
Pulmonary Tuberculosis ...	...	29	29	18	...	...	6	5	
Yaws ...	...	4	4	4	...	...	...	...
INTOXICATIONS.									
Opium Intoxication ...	...	1	1	1	...	...	...	...
GENERAL DISEASES NOT INCLUDED THE TWO PRECEDING GROUPS.									
Debility ...	...	2	2	1	...	...	...	1	
Anæmia ...	...	1	1	...	...	...	1	...	
Lymphadenoma ...	...	1	1	...	1	...	...	...
CERTAIN MORBID CONDITIONS INCIDENT TO VARIOUS PARTS.									
New growth, Malignant Myeloid									
Sarcoma ...	1	...	1	...	1	...	...	...
Carcinoma ...	...	1	1	1	...	...	...	...

Specific Diseases	Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
DISEASES OF THE NERVOUS SYSTEM.									
Nerves :—									
Peripheral Neuritis ...	...	5	5	5	...	...	...	...
Spinal Cord and Membranes :—									
Myelitis ...	2	1	3	2	...	...	1	...	
Nervous Disorders :—									
Epilepsy ...	...	1	1	1	...	...	...	...
Hemiplegia ...	...	2	2	2	...	...	...	...
Brain and Membranes :—									
Cerebral Haemorrhage ...	...	2	2	1	...	...	1	...	
Mental Diseases :—									
Mania ...	1	3	4	2	1	1	...	...
Puerperal Mania ...	...	1	1	1	...	...	...	...
Observations ...	...	4	4	4	...	...	...	...
DISEASES OF THE EYE.									
Conjunctivitis ...	...	7	7	7	...	...	...	...
Ulcer of Cornea ...	...	2	2	2	...	...	...	...
Iritis ...	...	1	1	1	...	...	...	...
Orbital Cellulitis and Cavernous Thrombosis ...	...	1	1	...	...	...	1	...	
DISEASES OF THE EAR.									
Otitis Externa ...	...	1	1	1	...	...	...	...
„ Media ...	...	1	1	1	...	...	...	...
DISEASES OF THE CIRCULATORY SYSTEM.									
Myocarditis ...	2	12	14	12	...	...	2	...	
Pericarditis ...	...	1	1	...	...	...	1	...	
DISEASES OF THE RESPIRATORY SYSTEM.									
Asthma ...	...	17	17	15	...	1	...	1	
Bronchitis ...	...	24	24	23	...	...	...	1	
Broncho-pneumonia ...	1	3	4	3	...	...	1	...	
Empyema ...	...	4	4	1	...	...	3	...	
Pleurisy ...	...	4	4	4	...	...	...	...
Pharyngitis ...	...	9	9	9	...	...	...	...
DISEASES OF THE DIGESTIVE SYSTEM.									
Appendicitis ...	...	3	3	...	3	...	...	...
Cirrhosis of Liver ...	...	2	2	...	...	...	2	...	
Colic Intestinal ...	1	21	22	22	...	...	...	...
Colitis ...	...	1	1	1	1	...	...	...
Chronic Peritonitis ...	...	1	1	...	...	...	1	...	
Diarrhoea ...	...	3	3	3	...	...	...	...
Diarrhoea Infantile ...	...	1	1	1	...	...	...	...
Duodenal Ulcer ...	1	...	1	1	...	...	...	...
Enteritis ...	...	9	9	9	...	...	...	...

Specific Diseases			Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
DISEASES OF THE DIGESTIVE SYSTEM—(Contd.)											
Gastritis	...	...	...	6	6	6	...	...	...	...
Hepatitis	...	...	...	4	4	4	...	...	...	...
Jaundice	...	...	...	2	2	2	...	...	1	...	
Piles Inflamed	...	...	...	1	1	1	...	...	...	...
Sprue	...	...	...	1	1	1	...	...	...	...
Tonsilitis	...	...	...	1	1	1	...	...	...	...
DISEASES OF THE LYMPHATIC SYSTEM.											
Adenitis	...	...	...	3	3	3	...	...	...	...
Bubo	...	...	...	5	5	5	...	...	...	...
Lymphangitis	...	...	...	1	1	1	...	...	...	...
DISEASES OF THE URINARY SYSTEM.											
Cystitis	...	...	...	2	2	2	...	...	...	...
Nephritis	...	...	1	8	9	6	...	...	3	...	
Retention of urine	...	...	...	1	1	1	...	...	...	...
Hæmaturia	...	...	...	1	1	1	...	...	...	...
AFFECTIONS CONNECTED WITH PREGNANCY AND PARTURITION.											
Labour Natural	...	...	2	13	15	15	...	...	...	...
Labour Difficult	...	...	...	1	1	1	...	...	...	...
Pregnancy Waiting case	...	...	...	2	2	2	...	...	...	...
Prematurity	...	...	...	1	1	...	...	...	1	...	
Puerperal Sepsis	...	...	...	2	2	...	...	...	2	...	
Retroverted gravid uterus	...	...	...	1	1	1	...	...	...	...
Retained placenta	...	...	...	1	1	1	...	...	...	...
Prolapse of the cord	...	...	...	1	1	1	...	...	...	...
New born	...	...	...	1	1	1	...	...	...	...
DISEASES OF THE ORGANS OF LOCOMOTION.											
Caries of the Spine Pott's disease	...	...	...	1	1	1	...	...	...	...
Spondylitis deformans	...	...	...	1	1	1	...	...	...	...
Osteomyelitis	...	...	...	1	1	1	...	...	...	...
Periostitis	...	...	...	1	1	1	...	...	...	...
Caries spine	...	...	...	1	1	...	...	...	...	1	
Caries rib	...	...	...	1	1	...	...	...	1	...	
Arthritis	...	...	...	1	1	1	...	...	...	...
Osteomyelitis Ilium	...	...	...	1	1	...	...	...	1	...	
Myalgia	...	...	...	2	2	2	...	...	...	...
DISEASES OF THE CONNECTIVE TISSUE.											
Ischiorectal	...	...	...	2	2	2	...	...	...	...
Abscess	...	...	...	19	19	17	...	...	2	...	
Cellulitis	...	...	...	13	13	9	...	...	3	1	
Gangrene	...	...	...	2	2	2	...	...	...	...
Swelling	...	...	...	1	1	1	...	...	...	...
Sinus	...	...	...	1	1	1	...	...	...	...

Diseases			Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
DISEASES OF THE SKIN.											
Boils	...	...	...	1	1	1	...	...	...	...
Carbuncle	...	...	...	1	1	1	...	...	...	...
Eczema	...	...	...	4	4	4	...	...	...	...
Herpes	...	...	...	1	1	1	...	...	...	...
Cancer	...	...	...	1	1	1	...	...	...	...
Ulcers	...	...	2	55	57	53	...	...	...	4	
INJURIES.											
Contusions	...	...	1	6	7	7	...	...	...	...
Dog-bite	...	...	2	5	7	1	6	...	...	...
Fracture simple	...	...	...	1	1	1	...	...	...	...
Fracture compound	...	...	...	1	1	1	...	...	...	...
Fracture compound base of the skull	...	...	...	3	3	2	1	...	...	...
Fracture Multiple	...	...	...	1	1	1	...	...	...	...
Sprain	...	...	...	2	2	2	...	...	...	...
Scald arm	...	...	...	1	1	1	...	...	...	...
Snake bite	...	...	...	1	1	1	...	...	...	...
Multiple abrasions	...	...	...	1	1	1	...	...	...	...
Multiple injuries	...	...	...	2	2	2	...	...	...	...
Wounds	...	...	3	34	37	35	...	...	...	...
PARASITES.											
Ankylostomiasis	...	...	5	43	48	47	...	...	...	...
Ascariasis	...	...	...	16	16	16	...	...	...	...
Hæmatoma	...	...	...	1	1	1	...	...	...	...
Scabies	...	...	...	3	3	2	...	...	...	1	
For observation	...	...	1	31	32	32	...	...	...	...
For sake of child, mother, etc....	...	...	1	32	33	31	...	...	...	2	
Total	...	...	52	1,047	1,099	966	13	3	82	35	
Nationalities.											
Chinese	...	...	29	624	653	549	7	2	70	25	
Indians	...	...	10	255	265	251	1	...	8	5	
Malays	...	...	13	154	167	154	5	1	4	3	
Javanese	...	...	...	2	2	...	...	...	...	2	
Siamese	...	...	...	11	11	11	...	...	...	...
Others	...	...	...	1	1	1	...	...	...	...
Total	...	...	52	1,047	1,099	966	13	3	82	35	

Percentage of deaths 7.5
Deaths within 48 hours 26
Percentage of deaths excluding above 5.05

OPERATIONS.

There were 3 major operations and 364 minor operations during the year.

APPENDIX—B.

Laboratory Work.

Specimens				Positive	Negative	Total
Blood (Malaria)	...	...	...	553	1,627	2,180
Pus	...	...	...	23	20	43
Eye Smear	...	...	...	13	15	28
Nasal Smear	...	...	...	...	4	4
Sputum	...	...	...	119	174	293
Stool	...	...	...	1,101	457	1,558
Urine	...	...	...	129	608	737
Total			...	1,938	2,905	4,843

APPENDIX—C.

Return of Sick of Prisoners admitted into Kangar Hospital, in 1931 A.D.

Diseases.				Cases.	Deaths.
Abscess	..	..	..	1	..
Acute Diarrhoea	..	..	..	2	..
Ankylostomiasis..	..	..	..	4	..
Asthma	..	..	..	3	..
Bacillary Dysentery	..	..	..	1	1
Colic, Intestinal ..	..	..	..	1	..
Enteric fever	..	..	..	1	..
Gastritis Acute ..	..	..	..	1	..
Gonorrhoea	..	..	..	1	..
Gonorrhoeal Rheumatism		..	..	1	..
Influenza	..	..	..	12	..
Injury foot	..	..	..	2	..
Malaria B.T.	..	..	..	4	..
„ T.N.D.	..	..	..	1	..
Fever of unknown origin ..		..	..	2	..
Pharyngitis	..	..	..	1	..
Pneumonia	..	..	..	1	..
Ulcer	..	..	..	1	..
Total				40	1

APPENDIX—D.

Deaths in Perlis according to Mukims and Nationality. 1931 A. D.

No.	Mukims	Malays		Chinese		Indians		Siamese		Total		Total	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
1	Abi	...	12	10	...	...	...	...	...	...	12	10	22
2	Arau	...	70	73	14	4	...	...	11	11	95	88	183
3	Bintong	...	21	19	1	2	...	...	1	...	23	21	44
4	Chuping	...	24	20	2	1	...	...	4	7	30	28	58
5	Kuala Perlis	...	18	25	3	2	...	...	...	...	21	25	46
6	Oran	...	14	19	1	...	2	...	2	...	19	19	38
7	Padang Malau	...	46	34	17	13	...	...	3	1	66	48	114
8	Paya	...	78	77	70	15	7	5	...	...	155	97	252
9	Sanglang	...	49	33	10	3	...	...	...	2	59	38	97
10	Utan Aji	...	20	22	...	...	...	...	1	...	21	22	43
11	Utan Gelam	...	25	25	3	1	...	...	...	...	28	26	54
	Total	...	377	355	121	41	9	5	22	21	529	422	951

APPENDIX—E.

Distribution of deaths according to Mukims and Diseases.

Mukims			Fever	Respiratory Diseases	Diarrhoea, Dysentery, etc.	Oedema (Basal)	Old Age	Infantile Convulsions	Deaths after abortion or child birth	Injuries and accidents	Other Causes	Total
Abi	...	...	15	2	...	...	3	2	...	...	...	22
Arau	...	...	64	28	10	8	22	34	5	2	10	183
Bintong	...	...	19	2	...	6	5	9	1	...	2	44
Chuping	...	...	32	4	...	2	5	9	1	...	5	58
Kuala Perlis	...	...	15	8	1	1	4	8	2	4	3	46
Oran	...	...	17	3	2	1	9	4	1	...	1	38
Padang Malau	...	...	78	6	6	4	1	13	2	1	3	114
Paya	...	...	10	6	9	8	10	28	7	1	24	252
Sanglang	...	...	53	8	4	2	12	9	...	1	8	97
Utan Aji	...	...	13	4	4	4	5	6	...	...	7	43
Utan Gelam	...	...	25	9	2	...	8	5	1	2	2	54
Total			436	134	38	36	84	127	20	11	65	951

APPENDIX—F.

Infantile Mortality in Perlis.

Mukims		Malays		Chinese		Indians		Siamese		Total		Total
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
Abi	...	1	2	...	...	...	...	...	...	1	2	3
Arau	...	15	12	3	1	1	...	2	1	21	14	35
Bintong	...	7	4	...	1	...	...	...	...	7	5	12
Chuping	...	5	7	1	1	...	...	...	4	6	12	18
Kuala Perlis	...	2	3	1	...	...	...	...	...	3	3	6
Oran	...	1	2	...	...	1	...	1	1	3	3	6
Padang Malau	...	11	6	2	4	...	...	2	...	15	10	25
Paya	...	22	16	6	...	...	...	...	...	28	16	44
Sanglang	...	3	5	2	1	...	...	...	...	5	6	11
Utan Aji	...	2	3	...	...	...	...	...	...	2	3	5
Utan Gelam	...	9	5	...	...	...	...	...	...	9	5	14
Total	...	78	65	15	8	2	...	5	6	100	79	179

APPENDIX—G.

Births and Still-Births in Perlis.

Mukims			BIRTHS						STILL BIRTHS					
			Eurasians	Malays	Chinese	Indians	Siamese	Total	Eurasians	Malays	Chinese	Indians	Siamese	Total
Abi	...	...	...	42	...	...	...	42	...	...	...	...	...	...
Arau	...	...	...	181	28	4	24	237	...	11	...	...	...	11
Bintong	...	...	...	45	3	...	1	49	...	...	...	...	...	...
Chuping	...	...	...	48	2	2	13	65	...	...	1	...	1	2
Kuala Perlis	...	...	...	79	28	...	...	107	...	1	...	...	...	1
Oran	...	...	...	67	2	2	1	72	...	3	...	...	...	3
Padang Malau	...	...	...	65	24	4	1	94	...	4	...	...	...	4
Paya	...	...	1	130	36	...	...	167	...	5	2	2	...	9
Sanglang	...	...	...	136	15	...	1	152	...	3	2	...	...	5
Utan Aji	...	...	...	68	...	...	3	71	...	...	...	...	...	...
Utan Gelam	...	...	...	126	1	...	1	128	...	...	...	...	...	...
Total	...	...	1	987	139	12	45	1,184	...	27	5	2	1	35

APPENDIX—H.

Distribution of births, infantile mortality and total deaths according to Mukims.

Mukims			Total Deaths	Births (excluding Still- births)	Infantile Mortality	Still-births
Abi	...	...	22	42	4	...
Arau	...	...	183	237	39	11
Bintong	...	...	44	49	13	...
Chuping	...	...	58	65	14	2
Kuala Perlis	...	...	46	107	7	1
Oran	...	...	38	72	6	3
Padang Malau	...	...	114	94	24	4
Paya	...	...	252	167	46	9
Sanglang	...	...	97	152	11	5
Utan Aji	...	...	43	71	5	...
Utan Gelam	...	...	54	128	10	...
Total			951	1,184	179	35

APPENDIX—I.

Deaths in Mukim Arau according to Sex and Diseases.

183 deaths were recorded.

				Males.	Females.
Fevers	..	..	..	32	38
Respiratory Diseases	..	..	..	14	16
Diarrhoea, Dysentery, etc.	..	..	..	5	3
Oedema (Basal)	..	..	..	3	3
Old Age	..	..	..	6	11
Infantile convulsions	..	..	..	21	10
Deaths after abortion or labour	..	..	..	..	4
Labour	..	..	..	..	..
Injuries and Accidents	..	..	..	..	1
Other causes	..	..	..	6	10
Total				87	96

Deaths in Mukim Arau, according to Sex and Ages.

				Males.	Females.
1 year and under	..	..	..	15	19
5 years and under	..	..	..	10	12
15 „ „ „	..	..	..	5	5
25 „ „ „	..	..	..	6	3
35 „ „ „	..	..	..	12	10
45 „ „ „	..	..	..	5	7
50 „ „ „	..	..	..	4	8
55 „ „ „	..	..	..	6	2
65 „ „ „	..	..	..	8	10
75 „ „ „	..	..	..	10	4
100 „ „ „	..	..	..	8	13
Above 100 years	..	..	..	..	1
Total				89	94

APPENDIX—J.

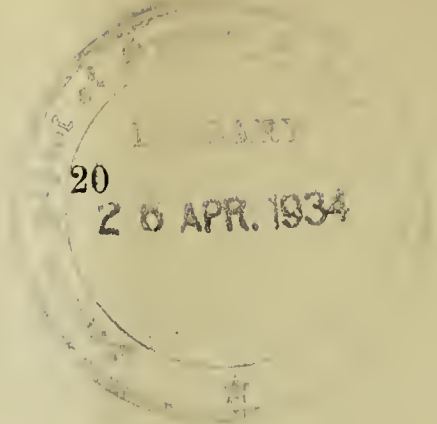
METEOROLOGICAL RETURN OF HOSPITAL, PERLIS, FOR 1931 A.D.

MONTHS, 1931 A.D.				TEMPERATURE				HYGROMETER				Total Rainfall	Greatest Rainfall during 24 hours	
				Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Dew point	Humidity			
January	81.5	89.4	72.8	16.6	75.8	.785	72.0	73.1	.79	.27	Highest Shade Temperature=101° on 27th March. Lowest Shade Temperature=67° on 22nd & 23rd Feb.
February	...	...	...	83.6	94.3	71.9	22.4	75.8	.749	70.6	65.1	.32	.32
March	...	...	...	85.7	97.5	73.1	24.4	77.1	.774	71.6	62.9	1.38	.74
April	...	...	...	85.0	93.7	75.2	18.5	79.8	.909	76.4	75.6	11.79	3.58
May	...	...	...	84.4	91.5	75.5	16.0	79.7	.918	76.7	77.8	6.95	2.15
June	...	...	...	82.6	90.0	75.1	14.9	78.8	.906	76.3	81.3	11.49	2.22
July	...	...	...	82.4	88.1	74.3	13.8	77.5	.848	74.3	76.7	5.11	1.24
August	...	...	...	82.0	87.5	77.7	9.8	78.0	.877	75.3	80.3	13.28	2.62
September	...	...	...	82.2	86.7	76.9	9.8	78.4	.894	75.9	81.3	8.81	1.44
October	...	...	...	80.7	86.0	75.7	10.3	78.0	.900	76.1	86.0	13.39	2.35
November	...	...	...	80.8	87.5	77.6	9.9	76.6	.832	73.7	79.2	2.66	.83
December	...	...	...	80.1	86.8	76.1	10.7	75.6	.799	72.5	77.8	10.72	2.93

APPENDIX—K.

Report showing the number and types of larvae collected in Perlis in the year 1931.

FOUND AT	Maculatus	Karwarri	Acunitus	Fuliginosus	Barbipostis	Hyrearnus	Hyre. Var. Padd.	Vagus	Kochii	Tessellatus	Ludlowii	Umbrosus	Novambrosus	Aitkenii t. I	Aitkenii t. II	Aitkenii t. III	Aitkenii t. IV	REMARKS.
Kangar	...	...	3	77	426	270	...	444	559	36	1	...	1	...	...	...	...
Arau	...	...	...	27	164	136	11	275	407	...	...	...	...	...	...	...	...
Beseie boy's School	16	12	...	90	68	158	...	55	21	...	...	7	...	...	...	...	...
Padang Malau Cooly Line P.W.D.	...	...	...	...	20	16	...	19	27	...	...	...	...	...	...	...	...
Tasoh Estate	29	32	...	...	90	5	...	...	20	...	...	...	...	11	8	9	13	
Kaki Bukit	35	27	...	...	19	7	...	...	...	...	...	...	...	29	11	37	7	
TOTAL	80	71	3	194	769	592	11	793	1,034	36	1	7	1	40	19	46	20	



2 APR. 1934